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AD A046 800



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ENVIRONMENTAL POLLUTION:

NOISE POLLUTION - AIRPLANE NOISE

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*Bibliographies	Urban Areas	Cockpits
*Aircraft Noise	Airports	Speech
*Noise Pollution	Hearing	Impulse Noise
Jet Plane Noise	Propeller Noise	Military Aircraft
Jet Engine Noise	Commercial Aircraft	Aircraft Engine Noise

20. ABSTRACT *(Continue on reverse side if necessary and identify by block number)*

This bibliography is an unclassified compilation of citations on Noise Pollution - Airplane Noise. These citations deal primarily with measuring and assessing the effects of noise exposure on hearing, speech, communications and community/airport noise. Reports pertaining to sonic boom specifically have been omitted. Corporate Author-Monitoring Agency, Subject, Title and Personal Author are provided.

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This unclassified and unlimited bibliography contains 308 citations of reports on *Environmental Pollution: Noise Pollution-Airplane Noise.*

Citations were taken from entries processed into the Defense Documentation Center's data bank during the period of January 1953 to February 1977.

This report supersedes DDC report bibliography on *Environmental Pollution: Noise Pollution - Airplane Noise*, AD-724 850, DDC-TAS-71-26-1, dated June 1971.

Individual entries are arranged in AD number sequence under the heading AD Bibliographic References. Computer generated indexes of Corporate Author-Monitoring Agency, Sub[illegible] Title and Personal Author are provided.

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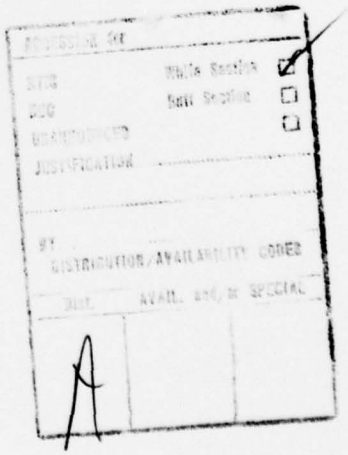

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CONTENTS

Page

FOREWORD iii

AD BIBLIOGRAPHIC REFERENCES 1

INDEXES

CORPORATE AUTHOR-MONITORING AGENCY O-1

SUBJECT D-1

TITLE T-1

PERSONAL AUTHOR P-1

Preceding Page Blan

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 261 500
AIR PROVING GROUND CENTER EGLIN AFB FLA BIOASTRONAUTICS DIV

B-58 FLIGHT LINE AND MAINTENANCE HANGAR NOISE SURVEY (CARSWELL AFB, TEXAS) (U)

JUL 61 32P LANEY,SHERRILL G.;

PROJ: APGC-102AH2
MONITOR: APGC TN-61-27

UNCLASSIFIED REPORT

DESCRIPTORS: *AIRPLANE ENGINE NOISE, *AIRCRAFT NOISE, *JET BOMBERS, *JET ENGINE NOISE, CONTROL, EAR PROTECTORS, EFFECTIVENESS, HANGARS, HAZARDS, HUMAN FACTORS ENGINEERING, MAINTENANCE, MEASUREMENT, MEASUREMENT, TEST EQUIPMENT (U)
IDENTIFIERS: B-58 AIRCRAFT, A01-402 ENGINES (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 263 053
CORNELL AERONAUTICAL LAB INC BUFFALO N Y

EVALUATION OF AIRPORT NOISE AND COMMUNITY REACTION (U)

SEP 60 1V
CONTRACT: FAA BDR15

UNCLASSIFIED REPORT

DESCRIPTORS: *AIRCRAFT NOISE, *AIRPORTS, *JET PLANE NOISE, *PSYCHOACOUSTICS, ACOUSTIC INSULATION, AIRPLANE LANDINGS, ANALYSIS, ATTENUATION, INTENSITY, MEASUREMENT, TAKEOFF, THEORY (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 267 052
NATIONAL OPINION RESEARCH CENTER UNIV OF CHICAGO ILL

COMMUNITY REACTIONS TO AIR FORCE NOISE. PART I. BASIC CONCEPTS AND PRELIMINARY METHODOLOGY (U)

MAR 61 1V BORSKY,PAUL N.;
CONTRACT: AF33 616 2624
MONITOR: ASD TR60 689 V1

UNCLASSIFIED REPORT

DESCRIPTORS: *JET ENGINE NOISE, *PUBLIC OPINION, *SOCIOLOGY, AIRPLANE ENGINE NOISE, JET PLANE NOISE (U)

A COMPREHENSIVE CONCEPTUAL SCHEME TO DESCRIBE THE ANNOYANCE AND COMPLAINT PROCESSES INVOLVED IN COMMUNITY REACTIONS TO JET AIRCRAFT NOISE AND RELATED OPERATIONS W S EVELOPED. THIS BROAD THEORETICAL FRAMEWORK IS BASED ON A MORE DETAILED EVALUATION OF A NACA STUDY, A SERIES OF INTENSIVE PERSONAL INTERVIEWS WITH NEW YORK CITYAND HANSCOM AIR FORCE BASE RESIDENTS, AND DISCUSSIONS WITH TECHNICAL PERSONNEL CONCERNED WITH ACOUSTICS, PUBLIC RELATIONS, JET MANUFACTURING, AND FLIGHT OPERATIONS. THE THEORETICAL SCHEME DEALS WITH BROAD ASPECTS OF THE PROBLEM: THE OBJECTIVE PHYSICAL CHARACTERISTICS OF JET STIMULI AND RELATED RESIDENTIAL DISTURBANCES, THE INTERVENING SOCIOPSYCHOLOGICAL VARIABLES AFFECTING INDIVIDUAL PERCEPTION, FEELINGS OF ANNOYANCE, THE A DITIONAL INTERACTING FACTORS MODIFYING INDIVIDUAL EXPRESSION OF SUCH FEELINGS, AND THE OVER-ALL COMMUNITY CONSIDERATIONS DETERMINING THE SCOPE OF COMMUNITY ACTION. A STANDARD PERSONAL INTERVIEW QUESTIONNAIRE WAS DEVELOPED AND PRETESTED FOR POSSIBLE U E IN VALIDATING THE CONCEPTUAL SCHEME AND IN DERIVING PRECISE STATISTICAL RELATIONSHIPS AMONG THE MANY VARIABLES. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 267 057
NATIONAL OPINION RESEARCH CENTER UNIV OF CHICAGO ILL

COMMUNITY REACTIONS TO AIR FORCE NOISE. PART II. DATA ON COMMUNITY STUDIES AND THEIR INTERPRETATION (U)

MAR 61 1V BORSKY,PAUL N.;
CONTRACT: AF41 657 59
MONITOR: ASD TR60 689 V2

UNCLASSIFIED REPORT

DESCRIPTORS: *JET ENGINE NOISE, *PUBLIC OPINION, *SOCIOLOGY, AIRPLANE ENGINE NOISE, JET PLANE NOISE (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 267 575
BOEING CO MORTON PA VERTOL DIV

NOISE SURVEY HU-1A HELICOPTER WITH MODIFIED EXHAUST SYSTEM (U)

JUL 61 1V SPENCER,R. H. ;STERFIELD, H. , JR.;
REPT. NO. 247
CONTRACT: DA44 177TC562
MONITOR: TREC TR61 92

UNCLASSIFIED REPORT

DESCRIPTORS: ACOUSTICS, AIRPLANE ENGINE NOISE, AIRCRAFT NOISE, DESIGN, EXHAUST DIFFUSERS, EXHAUST SYSTEMS, FLIGHT TESTING, HELICOPTERS, MEASUREMENT, NOISE, OPERATION, PRESSURE, TABLES(DATA), TESTS (U)
IDENTIFIERS: H-1 AIRCRAFT (U)

NOISE LEVELS OF ARMY HU-1A HELICOPTERS 9-1632 (EQUIPPED WITH A MODIFIED EXHAUST SYSTEM) AND 58-2080 (STANDARD CONFIGURATION) WERE RECORDED UNDER SIMILAR OPERATING AND AMBIENT CONDITIONS. SOME DIFFFRENCE EXISTS IN THE 200 FT DIRECTIVITY PATTERNS OF THE AIRCRAFT IN HOVER, ALONG WITH AN INCREASE IN HIGH FREQUENCY NOISE IN TAKE-OFF AND LANDING. THE LATTER MAY BE DUE TO PILOT TECHNIQUES IN ACHIEVING THE REQUIREMENTS OF TEST 2. EXCEPT FOR THESE, HOWEVER, SOUND PRESSURE LEVELS OF THE AIRCRAFT, UNDER SIMILAR OPERATING CONDITIONS, ARE CONSIDERED THE SAME. OTHER DIFFERENCES LIE WITHIN THE ENVELOPE OF REPEATABILITY. IT IS CONCLUDED THAT THE MODIFIED EXHAUST SYSTEM OF HU-1A NO. 9-1632 DOES NOT SIGNIFICANTLY AFFECT THE ACOUSTIC CHARACTERISTICS OF THE AIRCRAFT. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 272 210
LOCKHEED AIRCRAFT CORP BURBANK CALIF

A STUDY OF THE CHARACTERISTICS OF MODERN ENGINE NOISE AND THE RESPONSE CHARACTERISTICS OF STRUCTURES (U)

DEC 61 1V COX,R.J.;PARRY,H.J.;CLOUGH,J.;
CONTRACT: AF33 616 5546
MONITOR: ASD TR60 220

UNCLASSIFIED REPORT

DESCRIPTORS: *ARMY, *JET ENGINE NOISE, *JET PLANE NOISE, *LOGISTICS, *MAINTENANCE, *ORDNANCE, ACOUSTICS, AIRFRAMES, DYNAMICS, FATIGUE (MECHANICS), MATHEMATICAL ANALYSIS, MATHEMATICAL PREDICTION, MEASUREMENT, NOISE, PRESSURE, SOUND, STRUCTURES, TEST METHODS, TESTS (U)
IDENTIFIERS: J-79 ENGINES (U)

JET ENGINE NOISE A THE RESPONSE OF STRUCTURES TO THAT NOISE W RE STU IED. THE NEAR SOUND FIELD CHARACTERISTICS OF A JET ENGINE OPERATING ON THE GROUND AT BOTH MILITARY AND AFT RBUR ER HRU R MEASURED. SOUN PRESSURE LEVELS WERE OBTAINED IN THE NEAR FIELD AND WITHIN THE JET WAKE. PRESSURE LEVELS AND CROSS-CORRELATION COEFFICIENTS WERE OBTAINED IN NEAR FIELD AND WITHIN E JET WAKE. PRESSURE LEVELS AND CROSS-CORRELATION COEFFICIENTS WERE OBTAINED AT TWO LOCATIONS IN THE NOISE FIELD FOR THE FREE FIELD, A RIGID BOUNDARY AND A FLEXIBLE BOUNDARY. SEVERAL PANELS, REPRESENTATIVE OF TYPICAL AIRFRAME STRUCTURE, WERE SUBJECTED TO T IS JET ENGINE NOISE ENVIRONMENT. STRUCTURAL RESPONSE IN TERMS OF STRAIN ND ACCELERATIONS WAS MEASURED AND ANALYZED. THESE PANELS WERE ALSO SUBJECTED TO DISCRETE FREQUENCY EXCITATION TO DETERMINE BASIC RESPONSE PARAMETERS. AN ANALYTICAL METHOD FOR THE PREDICTION OF RESPONSE OF COMPLEX STRUCTURES IN AN ACTUAL JET NOISE ENVIRONMENT WAS DEVELOPED. PREDICTED AND MEASURED RESPONSES WERE COMPARED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 278 625
BOLT BERANEK AND NEWMAN INC CAMBRIDGE MASS

NOISE FROM AIRCRAFT OPERATIONS (U)

NOV 61 1V CLARK,WELDEN E.;
REPT. NO. TR61 611
CONTRACT: AF33 616 5629
MONITOR: ASD TR61 611

UNCLASSIFIED REPORT

DESCRIPTORS: AIRPLANE ENGINE NOISE, ARMY AIRCRAFT, JET ENGINE NOISE, JET PLANE NOISE, PROPELLER NOISE, RUNWAYS (U)

A SU MARY A ENERALIZATION OF KNOWLEDGE IS PRESENTED ON AIRCRAFT GROUND AND FLGHT OPERATIONS IN THE VICINITY OF AIR BASES, NOISE SOURCE CHARACTERISTICS OF MILTRY RCRAF AND PROPAGATION OF SOUND FROM AIRCRAFT TO OBSERVRS IN THE VICINITY OF OR ON AIR BASES. DATA FROM E RLIER AIR FORCE STUDIES, TOGETHER WITH NEW DATA, HAVE BE DINCORPOAED INTO AIRCRAFT NOISE PR DICTION PROCEDURES AND DESCRIPTIONS OF OPERATIONS CHAR CTERISTICS. THE REPORT PROVIDES AN INTEGRATED PRESENTATION OF AVAILABLE I FORMATION TECQUE A TE FACTORS TO BE CONSIDERED IN DETERMINATION OF NOISE FROM AIRCRAF OERAIN HA S I TEREDIAE IN COMPLEXITY BETWEEN A SIMPLIFIED ''HANDBOOK'' AND HE SPECIFIC, DEI SOURCE MATERIAL. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 294 189
WESTERN ELECTRO-ACOUSTIC LAB INC LOS ANGELES CALIF

ACOUSTICAL EVALUATION OF TYPE II AIRCRAFT GROUND RUNUP NOISE SUPPRESSOR AT TRUAX AIR FORCE BASE, WISCONSIN (U)

DEC 62 1V ELDRED,KENNETH M.;
REPT. NO. M22
CONTRACT: AF33 616 5744
PROJ: AF-7210
MONITOR: AMRL MEMO-M-22

UNCLASSIFIED REPORT

DESCRIPTORS: *JET ENGINE NOISE, ACOUSTICS, DESIGN, EXHAUST DIFFUSERS, JET FIGHTERS, LOAD DISTRIBUTION, REDUCTION, SUPPRESSORS (U)

ACOUSTICAL EVALUATIONS WERE MADE OF THE TYPE II AIRCRAFT GROUND RUNUP NOISE SUPPRESSORS. THE EVALUATIONS PROVIDE COMPARISON OF PERFORMANCE WITH AND WITHOUT INSTALLATION OF A DIFFUSION SCREEN IN THE EXHAUST STREAM. A DESCRIPTION IS PRESENTED OF THE SUPPRESSOR'S REDUCTION OF THE NOISE RADIATED BY THE AIRCRAFT TO THE FAR FIELD, AND THE CHANGE IN THE NOISE ENVIRONMENT FOR MAINTENANCE PERSONNEL RESULTING FROM ENCLOSING THE AIRCRAFT. THE NOISE ENVIRONMENT IN THE SUPPRESSOR'S CONTROL AND UTILITY ROOMS DURING AIRCRAFT RUNUP IS DESCRIBED. THE COMPUTED TRANSMISSION LOSS IS REPORTED FOR THE WALLS AND DOORS AND AN ESTIMATE OF THE RELATIVE CONTRIBUTIONS OF EACH NOISE TRANSMISSION PATH TO THE SUPPRESSOR'S FAR FIELD NOISE IS INCLUDED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 421 567
ARMY AEROMEDICAL RESEARCH UNIT FORT RUCKER ALA

NOISE PROBLEMS ASSOCIATED WITH THE OPERATION OF US ARMY AIRCRAFT, (U)

JUN 63 144P HATFIELD,JIMMY L. ;GASAWAY, DONALD C. ;
REPT. NO. AARU-63-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*AIRCRAFT NOISE, HAZARDS), ARMY AIRCRAFT, CONTROL, HEARING, AVIATION MEDICINE, RECONNAISSANCE AIRCRAFT, HELICOPTERS, VIBRATION, ENGINE NOISE, MEASUREMENT, HUMANS, SPEECH TRANSMISSION, AIRPLANE ENGINE NOISE, VERTICAL TAKEOFF AIRCRAFT, SHORT TAKEOFF AIRCRAFT, INTERNAL COMBUSTION ENGINE NOISE (U)

THIS REPORT DESCRIBES AND ILLUSTRATES BASIC, AS WELL AS UNIQUE, CHARACTERISTICS OF NOISE ASSOCIATED WITH THE OPERATION OF ARMY AIRCRAFT. IT SUMMARIZES THE IMPORTANT FACTS RELATIVE TO HAZARDOUS NOISE, ITS EFFECTS ON MAN, THE CHARACTERISTICS OF NOISE GENERATORS, NOISE REDUCTION CONCEPTS, AND FUTURE NOISE PROBLEMS. THE PURPOSE IS TO ALERT AVIATION MEDICAL OFFICERS, FLIGHT SURGEONS, AND PHYSICIANS IN THE ARMY TO THIS PROBLEM, AND PROVIDE GUIDANCE IN THOSE CIRCUMSTANCES WHERE A PROBLEM OF POTENTIALLY HAZARDOUS NOISE EXISTS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 427 666
ADVISORY GROUP FOR AERONAUTICAL RESEARCH AND DEVELOPMENT
PARIS (FRANCE)

NOISE AND ITS EFFECT ON AIRCRAFT OPERATION, (U)

JAN 63 19P COLES, G. M. ;
MONITOR: AGARD 433

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT THE AIRCRAFT TAKE-OFF AND LANDING SPECIALISTS' MEETING, SPONSORED BY THE AGARD FLIGHT MECHANICS PANEL, HELD IN PARIS, 15-18 JAN 63.

DESCRIPTORS: (*JET ENGINE NOISE, REDUCTION), (*JET TRANSPORT PLANES, FLIGHT PATHS), LOW ALTITUDE, AIRSPEED, TAKEOFF, CLIMBING, TOLERANCES (PHYSIOLOGY), ACCELERATION, WEIGHT, DISTRIBUTION, AIRPLANE LANDINGS, COMPRESSOR NOISE, OPERATION, AIRCRAFT NOISE, PUBLIC OPINION (U)

THE NOISE GENERATED BY A JET ENGINE CAN BE CONSIDERED AS BEING MADE UP OF TWO MAIN FORMS: THAT GENERATED EXTERNALLY (E.G. JET NOISE), AND THAT GENERATED INTERNALLY (E.G. COMPRESSOR NOISE). IN THE IN-FLIGHT OPERATION OF A PARTICULAR AIRCRAFT THE THREE FACTORS MOST SIGNIFICANTLY AFFECTING COMMUNITY NOISE LEVEL ARE ALTITUDE, AIRSPEED AND POWER SETTING. AS EACH OF THESE FACTORS AFFECTS EACH FORM OF NOISE GENERATIO IN A DIFFERENT WAY, A CONSIDERABLE INVESTIGATION OF POSSIBLE TAKE-OFF TECHNIQUES MUST BE CARRIED OUT IN ORDER TO ACHIEVE THE MAXIMUM COMMUNITY BENEFIT FROM SPECIAL PROCEDURES. OPERATIONAL TECHNIQUES AIMED AT REDUCING COMMUNITY NOISE LEVELS CONSIST OF FLYING THE AIRCRAFT SUCH THAT THE MOST FAVOURABLE COMBINATION OF AIRSPEED, ALTITUDE AND POWER SETTING IS ACHIEVED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 432 086
GENERAL ELECTRIC CO CINCINNATI OHIO

INVESTIGATION OF THE NOISE ASPECTS OF CARRIER DECK JET ENGINE OPERATION, AND EFFECTS OF NOISE SUPPRESSION ON AIRCRAFT MISSION PERFORMANCE. VOLUME I. EFFECTS OF NOISE FROM CARRIER DECK JET ENGINE OPERATION ON HEARING, SPEECH INTERFERENCE, AND SONIC FATIGUE. (U)

DESCRIPTIVE NOTE: FINAL REPT. ON PHASE II,
JAN 64 129P WELLS,R. J. ;SCHULZ,M. W. ;
TATGE,R. B. ;
CONTRACT: NOW-62-0887

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*JET ENGINE NOISE, NAVAL AIRCRAFT), (*PHYSIOLOGY, HEARING), (*HEARING, FATIGUE (PHYSIOLOGY), SUPPRESSORS, ACOUSTICS, SPEECH TRANSMISSION, PATHOLOGY, EFFECTIVENESS, MATHEMATICAL ANALYSIS, LINEAR SYSTEMS, TRANSFORMATIONS (MATHEMATICS), STRESS (PHYSIOLOGY) (U)
IDENTIFIERS: RANDOM PROCESSES (U)

INFORMATION GATHERED FROM A LITERATURE SEARCH RELATIVE TO HEARING LOSS VS. NOISE EXPOSURE IS REVIEWED. THE RESULTS OF SUCH STUDIES ARE APPLIED TO THE SPECIFIC PROBLEM OF DETERMINING CRITERIA APPLICABLE TO THE HEARING DAMAGE RISK PROBLEM ABOARD AIRCRAFT CARRIERS. SIMPLE NOMOGRAMS ARE DERIVED TO QUICKLY EVALUATE THE MAXIMUM ALLOWABLE EXPOSURE TIME TO A GIVEN SEQUENCE OF TAKE-OFFS EXPRESSED IN TERMS OF OCTAVE-BAND SOUND LEVEL VS. TIME PLOTS AT THE OBSERVER'S EAR. THESE CHARTS ARE BASED UPON THE ALLOWANCE OF A COMPUTED TTS2 (TEMPORARY THRESHOLD SHIFT 2 MINUTES AFTER EXPOSURE TO THE NOISE) OF 10-13 DB AT 2000 CPS AND 20-23 DB AT 4000 CPS. ADDITIONAL NOMOGRAMS ALLOW RAPID COMPUTATION OF TTS GROWTH AND RECOVERY DURING NOISY AND QUIET PERIODS RESPECTIVELY. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 615 015
BOLT BERANEK AND NEWMAN INC LOS ANGELES CALIF

LAND USE PLANNING RELATING TO AIRCRAFT NOISE. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.
OCT 64 58P

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: JOINTLY SUPPORTED BY THE USAF AND THE FAA.

DESCRIPTORS: (*AIRPLANE ENGINE NOISE, URBAN PLANNING), (*URBAN PLANNING, AIRPLANE ENGINE NOISE), TERMINAL FLIGHT FACILITIES, URBAN AREAS, SITE SELECTION, INSTRUCTION MANUALS, JET ENGINE NOISE, HEARING, THRESHOLDS (PHYSIOLOGY), DETERMINATION, CIVIL AVIATION, MILITARY OPERATIONS (U)

THIS MANUAL DESCRIBES A PROCEDURE FOR PREDICTING AVERAGE COMMUNITY RESPONSES TO ENGINE NOISE GENERATED BY AIRCRAFT OPERATIONS. THROUGH THE USE OF THIS PROCEDURE IT BECOMES POSSIBLE TO APPLY THE SAME YARDSTICK TO MILITARY AND CIVIL AIRCRAFT NOISE PROBLEMS. THE PROCEDURE THEREFORE CAN SERVE AS A UNIFORM GUIDE IN PLANS FOR LAND UTILIZATION IN THE VICINITY OF MILITARY, CIVIL AND COMBINED AIRFIELD FACILITIES WORLD-WIDE. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 617 763
BOLT BERANEK AND NEWMAN INC LOS ANGELES CALIF

NOISE CONTOURS FOR SHORT AND MEDIUM RANGE TRANSPORT AIRCRAFT AND BUSINESS AIRCRAFT. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
MAR 65 47P BISHOP,DWIGHT E. ;
CONTRACT: FA64WA4949
MONITOR: FAA-ADS , 35

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*TRANSPORT AIRCRAFT, AIRCRAFT NOISE), (*COMMERCIAL PLANES, AIRCRAFT NOISE), (*AIRCRAFT NOISE, TRANSPORT AIRCRAFT), AIRPLANE ENGINE NOISE, JET ENGINE NOISE, MEASUREMENT, TAKEOFF, LANDING, AIRPORTS (U)

GENERALIZED NOISE CONTOURS, IN TERMS OF THE PERCEIVED NOISE LEVEL, ARE PRESENTED FOR TAKEOFF AND LANDING OPERATIONS OF: A) TWO AND THREE ENGINE, SHORT AND MEDIUM RANGE TURBOJET AND TURBOFAN TRANSPORT AIRCRAFT, (BOEING 727, BAC 1-11, DOUGLAS DC-9 AND SUD AVIATION CARAVELLE 3 AND 6); B) MULTI-ENGINE TURBOJET AND TURBOFAN BUSINESS AIRCRAFT (JET COMMANDER 1121, DASSAULT FALCON, HAWKER SIDDELEY D. H. 125, LEAR JET 23, LOCKHEED JETSTAR AND NORTH AMERICAN SABRELINER); AND C) TWO-ENGINE PROPELLER TRANSPORT AND BUSINESS AIRCRAFT. ESTIMATES OF GROUND RUNUP NOISE FOR AIRCRAFT IN GROUPS A) AND B) ABOVE ARE ALSO PRESENTED. THE NOISE CONTOURS ARE BASED ON NOISE MEASUREMENTS AND ESTIMATES. THE NOISE CONTOURS EXTEND THE SCOPE OF AIRCRAFT NOISE INFORMATION FOR LAND USE PLANNING IN THE VICINITY OF AIRPORTS. THE NOISE INFORMATION SHOULD BE PARTICULARLY HELPFUL IN DESCRIBING THE NOISE ENVIRONMENT IN AND ABOUT SMALLER AIRPORTS NOT REGULARLY HANDLING MILITARY OR LARGE CIVIL JET TRANSPORT AIRCRAFT. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 617 764
BOLT BERANEK AND NEWMAN INC LOS ANGELES CALIF

HELICOPTER NOISE CHARACTERISTICS FOR HELIPORT PLANNING. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
MAR 65 70P BISHOP,DWIGHT F. ;
CONTRACT: FA64WA4949
MONITOR: FAA-ADS, 40

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*HELICOPTORS, ENGINE NOISE), (*ENGINE NOISE, HELICOPTERS), (*AIRPORTS, ENGINE NOISE), URBAN AREAS, NOISE, TAKEOFF, LANDING, HOVERING, LANDING FIELDS, SITE SELECTION, AUDITORY PERCEPTION (U)

THE REPORT PRESENTS TECHNICAL INFORMATION AND PROCEDURES FOR ESTIMATING THE NOISE LEVELS PRODUCED BY CURRENT CIVIL AND MILITARY HELICOPTERS (PISTON- AND TURBINE-POWERED) DURING VARIED FLIGHT AND GROUND OPERATIONS. INFORMATION AND PROCEDURES ARE ALSO PRESENTED FOR COMPARING HELICOPTER NOISE WITH OTHER VEHICLE NOISE, AND WITH AMBIENT NOISE FOUND IN TUPICAL URBAN AND SUBURBAN AREAS. THESE PROCEDURES PERMIT AN ASSESSMENT OF THE EXTENT TO WHICH HELICOPTER NOISE IS COMPATIBLE WITH TYPICAL LAND USES (RESIDENTIAL, COMMERCIAL, INDUSTRIAL, ETC.) IN AREAS NEAR HELIPORTS. NOISE DATA AND PROCEDURES ARE PRESENTED IN SIMPLIFIED FASHION. THE INFORMATION MAY BE READILY USED BY THOSE WITHOUT SPECIALIZED ACOUSTICAL TRAINING BUT WHO ARE CONCERNED WITH THE LOCATION AND DEVELOPMENT OF A HELIPORT, OR WITH LAND PLANNING OR LAND ZONING IN THE VICINITY OF HELIPORTS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 617 765
BOLT BERANEK AND NEWMAN INC LOS ANGELES CALIF

FACTORS INFLUENCING THE NOISE EXPLOSURE UNDER THE LANDING PATH FOR JET TRANSPORT AIRCRAFT. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
MAR 65 37P PIETRASANTA,A. C. ;
CONTR[illegible] FA64WA4949
MONI[illegible] ADS , 39

[illegible]NCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*JET TRANSPORT PLANES, JET ENGINE NOISE), (*TURBOPROP ENGINES, ENGINE NOISE), (*JET ENGINE NOISE, FLIGHT PATHS), (*FLIGHT PATHS, JET ENGINE NOISE), AIRPORTS, LANDING, RUNWAYS, TURBOJET ENGINES, AUDITORY PERCEPTION (U)
IDENTIFIERS: CONVAIR 990 AIRCRAFT, C-135 AIRCRAFT (U)

ON THE BASIS OF AVAILABLE ACOUSTICAL DATA CALCULATIONS HAVE BEEN MADE TO DETERMINE THE QUANTITATIVE EFFECT ON THE NOISE EXPOSURE UNDER THE LANDING PATH OF CHANGES IN RUNWAY THRESHOLD LOCATION, GLIDE SLOPE ANGLE, AND ENGINE POWER SETTING. EACH OF THESE FACTORS HAS BEEN EXAMINED INDEPENDENTLY, I.E. WITH ALL OTHER CONDITIONS HELD CONSTANT, FOR OPERATION OF A TURBOFAN-POWERED CONVAIR 990 AND A TURBOJET-POWERED BOEING 707-120. CHANGES IN NOISE EXPOSURE ARE DESCRIBED IN TERMS OF CHANGES IN PERCEIVED NOISE LEVEL AND/OR CHANGES IN THE AREA ENCLOSED BY EQUAL PERCEIVED-NOISE-LEVEL CONTOURS FOR A RANGE IN GLIDE SLOPE ANGLES FROM 2-1/2 TO 6 DEGREES, RUNWAY THRESHOLD DISPLACEMENTS OF 1000 FEET AND 2000 FEET, AND FOUR DIFFERENT ENGINE POWER SETTINGS FROM APPROXIMATELY 60% THRUST DOWNWARD. THE RESULTS CAN BE GENERALIZED TO APPLY TO ESSENTIALLY ALL FOUR-ENGINE COMMERCIAL JET AIRLINERS IN OPERATION TODAY. THEY PROVIDE THE BASIS WHEREBY CHANGES IN THESE FACTORS CAN BE EVALUATED IN TERMS OF THEIR EFFECTIVENESS IN REDUCING NOISE EXPOSURE ALONE. FURTHER, TRADING RELATIONSHIPS AMONG CHANGES IN THESE FACTORS CAN BE DERIVED FROM THE DATA. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 617 766
BOLT BERANEK AND NEWMAN INC LOS ANGELES CALIF

STUDY OF THE EFFECT OF DEPARTURE PROCEDURES ON THE NOISE PRODUCED BY JET TRANSPORT AIRCRAFT. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
MAR 65 68P GALLOWAY,W. J. ;PIETRASANTA,A. C. ;PEARSONS,K. S. ;
CONTRACT: FA64WA4949
MONITOR: FAA-ADS , 41

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*JET TRANSPORT PLANES, JET-ENGINE NOISE), (*JET ENGINE NOISE, TAKEOFF), (*TAKEOFF, JET ENGINE NOISE), AIRPORTS, OPERATION, FLIGHT PATHS, AUDITORY PERCEPTION (U)

THE EFFECT OF VARIOUS DEPARTURE PROCEDURES OF COMMERCIAL JET TRANSPORT AIRCRAFT ON THE NOISE PRODUCED ON THE GROUND UNDER THE DEPARTURE PATH ARE PRESENTED. NOISE DATA AT FOUR MEASUREMENT STATIONS UNDER THE FLIGHT PATH OF RUNWAY 13R AT JOHN F. KENNEDY INTERNATIONAL AIRPORT, NEW YORK, WERE OBTAINED FROM 300 AIRCRAFT DEPARTURES. FOUR DIFFERENT CLASSES OF DEPARTURE PROCEDURES, INCLUDING THOSE SPECIFIED BY CURRENT AIRLINE OPERATING PRACTICES, ARE COMPARED WITH THE NOISE PRODUCED BY A RANDOM SET OF AIRCRAFT OPERATIONS WHERE THE DEPARTURE PROCEDURE WAS UNSPECIFIED. DETAILED RADAR OBSERVATIONS OF THE AIRCRAFT FLIGHTS, OPERATIONAL INFORMATION REPORTED BY PILOTS FLYING SPECIFIED PROCEDURES, AND THE MEASURED NOISE DATA ON ALL FLIGHTS OBSERVED WERE USED IN EVALUATING THE VARIOUS DEPARTURE PROCEDURES. THE STUDY SHOWS THAT IMPLEMENTATION OF A PROPOSED DEPARTURE PROCEDURE COULD REDUCE THE NOISE LEVELS ON THE GROUND UNDER JET TRANSPORT TAKEOFFS BY AS MUCH AS 8 PNDB AS COMPARED TO THE NOISE PRODUCED BY EXISTING PROCEDURES. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 617 935
BOLT BERANEK AND NEWMAN INC CAMBRIDGE MASS

SOME FACTORS INFLUENCING HUMAN RESPONSE TO AIRCRAFT NOISE: MASKING OF SPEECH AND VARIABILITY OF SUBJECTIVE JUDGMENTS. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUN 65 72P KRYTER,K. D. ;WILLIAMS,C. E.
;
REPT. NO. BBN-1234
CONTRACT: FA64WA4951
PROJ: 361 12H
MONITOR: FAA-ADS , 42

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*AIRCRAFT NOISE, REACTION(PSYCHOLOGY)), (*SPEECH RECOGNITION, AIRCRAFT NOISE), THRESHOLDS(PHYSIOLOGY), SPEECH, INTELLIGIBILITY, HEARING, TOLERANCES(PHYSIOLOGY), PSYCHOACOUSTICS, STATISTICAL ANALYSIS, GRAPHICS (U)

STATISTICS OF THE VARIABLILITY OF SUBJECTIVE JUDGMENTS OF THE LOUDNESS AND NOISINESS OF PURE TONES AND COMPLEX SOUNDS AS STUDIED IN THE LABORATORY AND IN THE FIELD ARE PRESENTED. AN ANALYSIS OF POSSIBLE SOURCES OR CAUSES OF THIS VARIABILITY IS MADE IN TERMS OF TEST-RETEST RELIABILITY, DIFFERENCES AMONG SUBJECTS, TYPE OF SOUNDS JUDGED AND EXPERIMENTAL METHOD USED IN OBTAINING JUDGMENTS. POSSIBLE CONTRIBUTIONS TO VARIABILITY OF JUDGMENTS DUE TO DIFFERENCES IN THE SIZE OF THE EXTERNAL EAR AND THE THRESHOLDS OF AUDITORY SENSITIVITY AT DIFFERENT SOUND FREQUENCIES FOR DIFFERENT AGE GROUPS ARE DISCUSSED. WORD INTELLIGIBILITY TESTS AT VARIOUS INTENSITY LEVELS WERE ADMINISTERED TO A CREW OF TRAINED LISTENERS IN THE PRESENCE OF RECORDED NOISE FROM JET AND PROPELLER-DRIVEN AIRCRAFT. THE NOISE WAS THAT WHICH WOULD BE PRESENT OUTDOORS AND IN A HOUSE AS THE RESULT OF ENGINE RUN-UP OPERATIONS AND WHEN THE AIRCRAFT WERE FLYING OVERHEAD SHORTLY AFTER TAKE-OFF AND PRIOR TO LANDING. METHODS OF MEASURING OR EVALUATING AIRCRAFT NOISE PREDICT THE RESULTS OF THE SPEECH TESTS IN THE FOLLOWING ORDER OF MERIT, FROM BEST TO WORSE: (1) ARTICULATION INDEX (AI); (2) AND (3) PERCEIVED NOISE LEVEL IN PNDB AND SPEECH INTERFERENCE LEVEL (SIL) (SIL AND PNDB APPEAR TO PREDICT THE MASKING OF SPEECH ABOUT EQUALLY WELL); (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 617 954
BOLT BERANEK AND NEWMAN INC LOS ANGELES CALIF

LAND USE PLANNING RELATING TO AIRCRAFT NOISE, APPENDIX A. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.
MAY 65 14P

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-615 015.

DESCRIPTORS: (*AIRCRAFT NOISE, URBAN PLANNING), (*URBAN PLANNING, AIRCRAFT NOISE), (*AIRPLANE ENGINE NOISE, URBAN PLANNING), JET ENGINE NOISE, COMMERCIAL PLANES, CIVIL AVIATION, URBAN AREAS, TAKEOFF, LANDING, SITE SELECTION (U)

THE APPENDIX PRESENTS PERCEIVED NOISE LEVEL CONTOURS FOR THE TAKEOFF AND LANDING OPERATIONS OF THE FOLLOWING TYPES OF CIVIL AIRCRAFT: (A) TWO AND THREE ENGINE, SHORT AND MEDIUM RANGE TURBOJET AND TURBOFAN TRANSPORTS (B) MULTI-ENGINE SMALL BUSINESS TURBOJET AND TURBOFAN AIRCRAFT (C) TWO-ENGINE PISTON AND TURBOPROP AIRCRAFT, BOTH TRANSPORT AND BUSINESS. THESE CONTOURS PERMIT THE DETERMINATION OF THE NOISE LEVEL IN PNDB OVER A WIDE AREA BENEATH AND OFF TO THE SIDE OF A FLIGHT PATH. THE APPENDIX ALSO INCLUDES A RUNUP NOISE CONTOUR FOR ESTIMATING THE NOISE FROM GROUND RUNUPS OF CIVIL AND MILITARY TURBOFAN ENGINES. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 618 190
BOLT BERANEK AND NEWMAN INC LOS ANGELES CALIF

ANALYSIS OF COMMUNITY AND AIRPORT RELATIONSHIPS/NOISE ABATEMENT. VOLUME I. AN APPROACH TO ANALYSIS OF AIRCRAFT NOISE PROBLEMS USING COMPUTER-AIDED TECHNIQUES. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT. FOR MAY 63-APR 64,
DEC 64 73P CLARK,WELDEN E. ;
REPT. NO. BBN-1093 VOL. 1
CONTRACT: FA WA4409
PROJ: 430 001 01R
MONITOR: SRDS , RD-64-148 V1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*AIRCRAFT NOISE, URBAN AREAS), (*URBAN AREAS, AIRCRAFT NOISE), (*COMPUTER PROGRAMMING, AIRCRAFT NOISE), FLIGHT PATHS, URBAN PLANNING, AIR TRANSPORTATION, JET PLANE NOISE, COMMERCIAL PLANES, DIGITAL COMPUTERS, PUBLIC OPINION, PUBLIC RELATIONS (U)

DEVELOPMENT OF A COMPUTER-AIDED APPROACH TO THE ANALYSIS OF AIRCRAFT NOISE AS IT AFFECTS COMMUNITIES NEAR AIRPORTS IS SUMMARIZED IN THE REPORT. THE MAJOR FACTORS THAT MUST BE DESCRIBED TO SPECIFY THE NOISE STIMULUS AND THE FACTORS WHICH APPEAR TO BE RELEVANT TO DESCRIPTION OF THE COMMUNITY-WIDE RESPONSE TO THAT NOISE ARE DISCUSSED AND DIAGRAMMED. AN APPROACH TO ANALYSIS OF AIRCRAFT NOISE SITUATIONS THAT INVOLVES CLOSE MAN-COMPUTER INTERACTION IS FORMULATED AND PROGRAMMING TO IMPLEMENT THIS APPROACH IS DESCRIBED. SOME ILLUSTRATIONS OF THE PROCESS ARE PRESENTED. THE MAJOR COMPUTER PROGRAMS BEING DEVELOPED WILL: (A) CALCULATE PERCEIVED NOISE LEVELS FROM OCTAVE BAND NOISE SPECTRA; (B) CALCULATE AREAS FROM GRAPHICAL INPUT DATA (MAPS, NOISE CONTOURS); (C) CALCULATE AND DISPLAY NOISE CONTOURS FOR A SIMULATED AIRCRAFT FLIGHT; (D) CALCULATE THE TIME PATTERN OF NOISE EXPOSURE AT A GROUND POSITION NEAR AN AIRCRAFT FLIGHT PATH; AND (E) CALCULATE AND ASSEMBLE THE NOISE LEVELS OCCURRING AT MULTIPLE GROUND POSITIONS DURING A NUMBER OF SIMULATED AIRCRAFT FLIGHTS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 618 191
BOLT BERANEK AND NEWMAN INC LOS ANGELES CALIF

ANALYSIS OF COMMUNITY AND AIRPORT RELATIONSHIPS NOISE ABATEMENT. VOLUME II. DEVELOPMENT OF AIRCRAFT NOISE COMPATIBILITY CRITERIA FOR VARIED LAND USES. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT. FOR MAY 63-APR 64,
DEC 64 108P BISHOP,DWIGHT E. ;
REPT. NO. BBN-1093 VOL. 2
CONTRACT: FA WA4409
PROJ: 430 001 01R
MONITOR: SRDS , RD-64-148 V2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*AIRCRAFT NOISE, URBAN AREAS), (*URBAN PLANNING, AIRCRAFT NOISE), BUILDINGS, CONSTRUCTION, JET PLANE NOISE, COMMERCIAL PLANES, PUBLIC OPINION, PUBLIC RELATIONS (U)

THE REPORT DESCRIBES TWO SIMPLIFIED PROCEDURES FOR ANALYZING AIRCRAFT NOISE IN THE VICINITY OF AIRPORTS TO DETERMINE: (A) WHETHER OR NOT AIRCRAFT NOISE WILL INTERFERE WITH WORK ACTIVITIES OR LAND USE, AND (B) WHAT BUILDING ARRANGEMENTS AND CONSTRUCTION FEATURES SHOULD BE INCORPORATED IN BUILDING DESIGN SO THAT AIRCRAFT NOISE WILL NOT INTERFERE WITH PLANNED ACTIVITIES INSIDE BUILDINGS. THE FIRST PROCEDURE IS GENERAL IN NATURE AND DEFINES AIRCRAFT NOISE ACCEPTABILITY CRITERIA FOR BROAD CATEGORIES OF LAND USE (RESIDENTIAL, COMMERCIAL, INDUSTRIAL, ETC.). THE SECOND PROCEDURE PROVIDES METHODS FOR DEVELOPING AIRCRAFT NOISE CRITERIA FOR SPECIFIC WORK ACTIVITIES HAVING VARYING DEGREES OF DEPENDENCE UPON SPEECH COMMUNICATION OR FREEDOM FROM NOISE INTERFERENCE; IT ALSO SPECIFIES METHODS FOR EVALUATING THE NOISE PROTECTION AFFORDED BY DIFFERENT TYPES OF BUILDING CONSTRUCTION AND BUILDING ARRANGEMENTS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 619 282
FEDERAL AVIATION AGENCY WASHINGTON D C

PRESENTATIONS AT NATIONAL AIRCRAFT NOISE SYMPOSIUM, SPONSORED BY THE FEDERAL AVIATION AGENCY AT THE INTERNATIONAL HOTEL, JOHN F. KENNEDY INTERNATIONAL AIRPORT, JAMAICA, NEW YORK, JUNE 9, 1965. (U)

65 92P

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIRCRAFT NOISE, SYMPOSIA), (*AIRPLANE ENGINE NOISE, URBAN AREAS), AIRPORTS, FLIGHT PATHS, URBAN PLANNING, JET ENGINE NOISE, SUPERSONIC AIRCRAFT, AIR POLLUTION, ODORS, AIR TRANSPORTATION, COSTS, UNITED STATES GOVERNMENT (U)

THE EFFORTS OF INDUSTRY AND GOVERNMENT IN SEEKING A SOLUTION TO THE PROBLEM OF AIRCRAFT NOISE IN URBAN AREAS ARE DISCUSSED. IT IS SUGGESTED THAT THE AVIATION COMMUNITY AND THE COMMUNITIES SURROUNDING GREAT METROPOLITAN AIRPORTS JOIN HANDS IN TAKING RESPONSIBLE AND EFFECTIVE ACTION IN DEALING WITH THE PROBLEM. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 619 409
SCHOOL OF AVIATION MEDICINE RANDOLPH AFB TEX

AN EVALUATION OF PATIENTS SUSPECTED OF HAVING NOISE-INDUCED HEARING LOSS, (U)

JUN 59 17P KRAUS,RALPH N. ;
REPT. NO. REVIEW-4-59

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*NOISE, HEARING), (*AIR FORCE PERSONNEL, HEARING), (*HEARING, AIR FORCE PERSONNEL), AUDITORY PERCEPTION, JET ENGINE NOISE, THRESHOLDS(PHYSIOLOGY), AUDITORY ACUITY, AUDIO FREQUENCY, MEDICAL EXAMINATION, AUDIOMETRY, PATHOLOGY, AVIATION MEDICINE (U)

THE RESULTS OF AN EVALUATION OF 77 U. S. AIR FORCE FLIGHT-LINE PERSONNEL WITH DEFECTIVE HEARING ARE REPORTED. THE EVALUATION REVEALED THAT 29 PATIENTS HAD A CONDUCTIVETYPE, 7 HAD A FUNCTIONAL-TYPE, AND 41 HAD A PERCEPTIVE-TYPE DEFECT. TWENTY-TWO OF THESE PERCEPTIVE CASES WERE UNILATERAL. IN ONLY 19 CASES WAS NOISE EXPOSURE CONSIDERED TO BE A POSSIBLE CAUSE OF DEFECTIVE HEARING. THE DIFFICULTIES ENCOUNTERED IN ATTEMPTING TO DETERMINE WHETHER DEFECTIVE HEARING IN A SPECIFIC PATIENT IS CAUSED OR AGGRAVATED BY NOISE EXPOSURE ARE DISCUSSED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 620 347
TENNESSEE UNIV KNOXVILLE

AN ANALYSIS OF LIABILITY IN AIRCRAFT TRESPASS AND NUISANCE CASES SINCE 1958. (U)

DESCRIPTIVE NOTE: MASTER'S THESIS,
AUG 65 85P ROBINS,RAYMOND C. ;
CONTRACT: AF33 608 1118

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED TO THE GRADUATE COUNCIL OF THE UNIVERSITY OF TENNESSEE.

DESCRIPTORS: (*JET PLANE NOISE, LAW), (*LAW, JET PLANE NOISE), SONIC BOOM, AIRPORTS, MILITARY FACILITIES, UNITED STATES GOVERNMENT, AIRCRAFT NOISE, LOW ALTITUDE, FLIGHT, MILITARY LAW (U)

THE STUDY DISCUSSES THE NATURE OF THE AIRCRAFT NOISE PROBLEM, ANALYZES COURT CASES INVOLVING JET NOISE AROUND AIRPORTS AND MILITARY BASES, AND IDENTIFIES THE FACTORS SIGNIFICANT IN DETERMINING WHETHER NOISE CONSTITUTES A COMPENSABLE DAMAGE. IN THE 1946 'UNITED STATES V. CAUSBY' CASE, THE U. S. WAS HELD LIABLE FOR THE NOISE OF ARMY PLANES THAT INTERFERED SERIOUSLY WITH THE OPERATION OF CAUSBY'S CHICKEN FARM. IN THE 1962 'GRIGGS V. ALLEGHENY COUNTY' CASE, THE SUPREME COURT HELD THE MUNICIPALITY OPERATING THE GREATER PITTSBURG AIRPORT LIABLE FOR AIRCRAFT NOISE, SAYING THE COUNTY SHOULD HAVE CONDEMNED ENOUGH PROPERTY TO PREVENT AIRCRAFT OPERATIONS FROM INTERFERING WITH ADJACENT LANDOWNERS. THE CONTENTION IS MADE THAT (1) HIGHER COURTS SHOULD INSIST ON MORE CONSISTENT INTERPRETATION OF THE CRITERIA USED TO DETERMINE WHEN AN EASEMENT HAS BEEN TAKEN, ALTITUDE ALONE BEING A LESS IMPORTANT FACTOR THAN OTHERS, (2) INTENSITY AND FREQUENCY OF NOISE AND THE USE MADE OF THE PROPERTY IS MORE IMPORTANT THAN A LINE MARKING THE PROPERTY BOUNDARY, (3) RIGID REQUIREMENTS SHOULD BE SET TO INSURE ADEQUATE SPACE FOR NEW AIRPORTS, (4) SOLVING THE NOISE PROBLEM AT EXISTING AIRPORTS SHOULD BE A COOPERATIVE EFFORT, AND (5) DETERMINATION OF COMPENSABLE NOISE DAMAGE SHOULD BE MADE BY COURTS WITH CONSIDERATION MORE FOR DEGREE OF DISTURBANCE THAN FOR PROPERTY BOUNDARIES. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 623 086
AEROSPACE MEDICAL RESEARCH LABS WRIGHT-PATTERSON AFB OHIO

NEARFIELD INFRASONIC NOISE GENERATED BY THREE TURBOJET AIRCRAFT DURING GROUND RUNUP OPERATIONS. (U)

DESCRIPTIVE NOTE: FINAL REPT. FOR JUN-AUG 64, AUG 65 25P ENGLAND,ROBERT T. ;POWELL, ROBERT G. ;
REPT. NO. AMRL-TR-65-132
PROJ: 7231
TASK: 723104

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*JET ENGINE NOISE, ACOUSTIC PROPERTIES), (*TURBOJET ENGINES, NOISE), (*NOISE, TURBOJET ENGINES), (*ACOUSTICS, JET ENGINE NOISE), AIRPLANES, TAXIING, TAKEOFF, SOUND, LOW FREQUENCY, THRESHOLDS(PHYSIOLOGY), MEASUREMENT, ACOUSTIC EQUIPMENT (U)

ACOUSTIC MEASUREMENTS IN THE FREQUENCY RANGE BETWEEN 4.5 TO 4500 CYCLES PER SECOND WERE MADE ON THE NEAR FIELD SOUND PRESSURE ENVIRONMENT PRODUCED BY THE F-101B, NF-102A, AND F-106A TURBOJET AIRCRAFT DURING GROUND RUNUP OPERATIONS. RESULTS FROM TWENTYEIGHT MICROPHONE LOCATIONS SHOW THAT THE MAXIMUM INFRASONIC NOISE BELOW AUDIO FREQUENCY RANGE IS GENERATED DOWNSTREAM FROM THE EXHAUST NOZZLE AND AT ENGINE SETTINGS PRODUCING MAXIMUM TURBULENT FLOW. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 638 355 5/9 17/2
PURDUE UNIV LAFAYETTE IND

AN EXPERIMENTAL COMPARISON OF 5 CONDITIONS FOR VOICE COMMUNICATION TRAINING. (U)

AUG 47 60P KELLY,J. C. ;MASON,HARRY M. ;
REPT. NO. 4,
CONTRACT: N60RI-104(02),
PROJ: PRF-20-K-1,
MONITOR: SPECDEVCEN 104-2-4

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*SPEECH, TRAINING), (*TRAINING DEVICES, SPEECH), (*VOICE COMMUNICATIONS, TRAINING DEVICES), SPEECH TRANSMISSION, NOISE, AIRCRAFT NOISE, INTELLIGIBILITY (U)

FIVE GROUPS OF UNDERGRADUATE MEN WERE TRAINED TO INCREASE WORD-INTELLIGIBILITY UNDER DIFFICULT COMMUNICATION CONDITIONS, USING COURSE CONTENT FOUNDED ON EXPERIENCE GAINED DURING WORLD WAR II. EACH GROUP WAS TRAINED IN A SITUATION PRESENTING A DIFFERENT TYPE OR AMOUNT OF INTERFERENCE. EFFECTS OF TRAINING WERE EVALUATED BY WORD-INTELLIGIBILITY TESTS AND BY JUDGMENTS OF CONNECTED SPEECH. COMPARISON OF INCREASES IN WORD-INTELLIGIBILITY OF EXPERIMENTAL AND CONTROL SUBJECTS SHOWS THAT: (A) SUBJECTS WHICH PRACTICED UNDER THE MOST SEVERE NOISE CONDITION GAINED LEAST. THIS MOST SEVERE CONDITION WAS THE SAME AS THE TEST CONDITION USED TO EVALUATE TRAINING OF ALL GROUPS. (B) SUBJECTS TRAINED UNDER CONDITIONS OF NOISE 10VU LESS SEVERE, GAINED SLIGHTLY MORE THAN THOSE TRAINED UNDER MOST SEVERE NOISE. (C) SUBJECTS TRAINED UNDER A CONDITION PRESENTING A LESS INTENSE NOISE THAN USED IN (B) ABOVE, GAINED MORE THAN ANY OTHER GROUP. THE NOISE USED WITH THIS GROUP CONSISTED OF GARBLED SPEECH SIGNALS. (D) TWO PRACTICE CONDITIONS WHICH DID NOT EMPLOY AN INTERPHONE SYSTEM PRODUCED SLIGHTLY GREATER GAINS THAN THE SEVERE NOISE CONDITION, BUT LESS THAN THE CONDITION PRESENTING A REDUCED LEVEL OF AIRPLANE NOISE (B). (E) EXPERIMENTAL SUBJECTS GAINED SUBSTANTIALLY MORE THAN CONTROL SUBJECTS WHO WERE GIVEN THE SAME TESTS AFTER PRELIMINARY INDOCTRINATION IN USE OF EQUIPMENT. THE MOST SEVERE CONDITION WAS DESIGNED TO APPROXIMATE CONDITIONS WIDELY USED FOR TRAINING AIRCREW MEMBERS IN VOICE COMMUNICATION (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 638 491 20/1 5/10
NATIONAL AVIATION FACILITIES EXPERIMENTAL CENTER ATLANTIC CITY N J

DISCUSSION OF THE UTILITY OF AVAILABLE TECHNIQUES FOR MEASURING AIRCRAFT NOISE AND PREDICTING COMMUNITY RESPONSE. (U)

DESCRIPTIVE NOTE: FINAL REPT.
MAY 66 20P GREEN,THOMAS H. ;
PROJ: 430-001-01R,
MONITOR: SRDS RD-66-31

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*AIRCRAFT NOISE, MEASUREMENT), (*PSYCHOACOUSTICS, AIRCRAFT NOISE), REACTION(PSYCHOLOGY), JET ENGINE NOISE, URBAN PLANNING, AIRPORTS (U)

PERCEIVED NOISE LEVEL (PNDB), A TECHNIQUE FOR MEASURING AIRCRAFT NOISE, IS CALCULATED FROM MEASURED NOISE LEVELS AND CORRELATES WELL WITH SUBJECTIVE JUDGMENTS IN TERMS OF ANNOYANCE AND NOISINESS. THE DISCUSSION CONSIDERS THE EFFECTS OF PHYSICAL LAWS AND EVIRONMENTAL FACTORS WHICH ATTENUATE, BOTH PREDICTABLY AND VARIABLY, THE SOUND PRESSURES REACHING THE GROUND. THE EFFECTS OF PSYCHOLOGICAL FACTORS WHICH INFLUENCE SUBJECTIVE JUDGMENTS ARE ALSO DISCUSSED. IT IS SUGGESTED THE EFFECT OF THESE FACTORS IS SUCH THAT PERCEIVED NOISE LEVEL IS OF USEABLE PRECISION AND ADDITIONAL REFINEMENT WOULD BE SUPERFLUOUS. THE PROCEDURE FOR PREDICTING COMMUNITY RESPONSE TO AIRPORT OPERATIONS USING COMPOSITE NOISE RATINGS IS DISCUSSED. ACTUAL MEASUREMENT OF AIRCRAFT NOISE IS NOT REQUIRED. NOISE CONTOURS OF AIRCRAFT OPERATIONS EXIST, AND THESE ARE USED IN CONJUNCTION WITH AIRPORT OPERATIONS DATA IN A SIMPLIFIED PROCEDURE TO DERIVE A PREDICTION OF COMMUNITY RESPONSE. IN AN EFFORT TO IMPROVE THE SENSITIVITY OF THE PREDICTION PROCESS TO LOCAL CONDITIONS, A SEPARATE STUDY WAS MADE OF THE DECISION-MAKING PROCESS ON THE MUNICIPAL LEVEL. A DEFINITIVE PATTERN COULD NOT BE DISCERNED AND IT WAS CONCLUDED THE EXISTING PREDICTIVE PROCEDURE CANNOT BE MADE MORE SENSITIVE TO COMMUNTIY REACTION AT THIS TIME. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 639 363 6/19 6/10 20/1
PSYCHOLOGICAL CORP NEW YORK

THE EFFECTS OF ULTRASONIC VIBRATIONS ON MAN. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.
APR 48 43P
CONTRACT: N6ORI-151(01),
MONITOR: NAVTRADEVCEN 151-1-15

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*ULTRASONIC RADIATION, TOLERANCES(PHYSIOLOGY)), SUPERSONIC AIRCRAFT, PILOTS, VIBRATION, PERFORMANCE(HUMAN), ACOUSTICS, INTENSITY, JET ENGINE NOISE, REVIEWS (U)

CONTRADICTORY REPORTS ARE CITED ABOUT BIOLOGICAL AND PSYCHOLOGICAL EFFECTS OF EXPOSURE TO JET ENGINES, TO DEFICES USED TO PRODUCE ULTRASONIC VIBRATIONS EXPERIMENTALLY, AND OF PARTICIPATION IN HIGH SPEED FLIGHT. THE EFFECTS UPON MAN ARE ALLEGED TO INVOLVE NAUSEA, DISTURBANCE OF EQUILIBRIUM, FATIGUE, MENTAL CONFUSION, HEADACHE, AND AUDITORY, VISUAL, AND MOTOR DISTURBANCES. THE EFFECTS ARE SAID TO BE TRANSIENT. DISTURBANCES OF EQUILIBRATION, FATIGUE, AND CONFUSION ARE THE MOST FREQUENTLY REPORTED SYMPTOMS. THESE DELETERIOUS EFFECTS ARE ATTRIBUTED TO ULTRASONIC VIBRATIONS. THE LOGIC BY WHICH ULTRASONIC VIBRATIONS BECOME THE CAUSE IS UNCLEAR IN MANY OF THE REPORTS. EFFECTS OF ULTRASONIC ENERGY WHEN APPLIED LOCALLY TO MAN ARE CONSIDERED. IN GENERAL, HEAT DEVELOPS AT THE SITE OF APPLICATION AND APPROPRIATE SENSORY STIMULATION RESULTS. SPECTRAL ANALYSES OF THE NOISE OBTAINED NEAR TURBO-JET ENGINES ON THE GROUND OR AIRCRAFT IN FLIGHT SHOW THAT BOTH SONIC AND ULTRASONIC VIBRATIONS ARE PRODUCED. UNDER THE CONDITIONS STUDIED, SONIC COMPONENTS EXCEED THE ULTRASONIC COMPONENTS IN INTENSITY. INTENSITY LEVELS APPEAR TO BE REDUCED AS ENGINE SPEED DECREASES. THERE IS EVIDENCE THAT, WITH INCREASING AIR SPEED, THE OVERALL INTENSITY LEVEL OF THE NOISE INCREASES AND STRONG ENERGY COMPONENTS MAY APPEAR AT ULTRASONIC FREQUENCIES AS WELL AS IN THE AUDIBLE RANGE. ACCORDING TO ONE STUDY, THIS TENDENCY IS EXAGGERATED AS THE SPEED APPROACHES A MACH NUMBER OF 1.0. IF IT IS ESTABLISHED THAT EXPOSURE TO VIBRATIONS FROM CURRENT TYPE ENGINES OR AIRCRAFT IS HARMFUL, (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOM09

AD- 645 955 20/1 1/5
BOLT BERANEK AND NEWMAN INC VAN NUYS CALIF

ANALYSIS OF COMMUNITY AND AIRPORT RELATIONSHIPS/NOISE ABATEMENT. (U)

DESCRIPTIVE NOTE: FINAL REPT. ON SEVEN PARTS.
DEC 65 356P
CONTRACT: FA-WA-4409
PROJ: 430-001-01R
MONITOR: FAA-RD 65-130

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIRCRAFT NOISE, PUBLIC OPINION), (*AIRPORTS, NOISE), ACCEPTABILITY, DECISION MAKING, TAKEOFF, ATMOSPHERES, SOUND TRANSMISSION (U)

CONTENTS: PREDICTING COMMUNITY RESPONSE TO AIRCRAFT NOISE; JUDGMENTS OF THE RELATIVE AND ABSOLUTE ACCEPTABILITY OF ACTUAL AND RECORDED AIRCRAFT NOISE; AN ANALYSIS OF SOME FACTORS AFFECTING COMMUNITY-AIRPORT DECISION-MAKING; THE REDUCTION OF AIRCRAFT NOISE MEASURED IN SEVERAL SCHOOLS, MOTEL AND RESIDENTIAL ROOMS; COMPUTER-AIDED STUDY OF TIME PATTERNS OF NOISE FROM JET AIRCRAFT TAKEOFFS; A STUDY OF AIRCRAFT FLYOVER NOISE VARIATIONS DUE TO CHANGES IN FLIGHT PATHS AND ATMOSPHERIC SOUND TRANSMISSION CHARACTERISTICS; APPLICATIONS OF METHODS FOR RATING LAND USE COMPATIBILITY WITH AIRCRAFT NOISE. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 646 025 20/1 5/10
BOLT BERANEK AND NEWMAN INC VAN NUYS CALIF

THE EFFECTS OF DURATION AND BACKGROUND NOISE LEVEL ON PERCEIVED NOISEINESS. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
APR 66 58P PEARSONS,KARL S. ;
CONTRACT: FA-65-WA-1180
MONITOR: FAA-ADS 78

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIRCRAFT NOISE, BACKGROUND), (*NOISE, ACCEPTABILITY), TESTS, REACTION(PSYCHOLOGY), PERCEPTION(PSYCHOLOGY), ANECHOIC CHAMBERS (U)

JUDGMENT TESTS WERE CONDUCTED TO INVESTIGATE THE EFFECT OF DURATION AND BACKGROUND NOISE ON THE PERCEIVED NOISINESS OF SOUNDS. THE TESTS WERE CONDUCTED IN AN ANECHOIC CHAMBER WITH 18 SUBJECTS. AIRCRAFT NOISE RECORDINGS WERE EMPLOYED IN THE BACKGROUND LEVEL TEST, AND THE RESULTS INDICATE THAT THE PRESENCE OF BACKGROUND NOISE REDUCES THE JUDGED NOISINESS OF AN AIRCRAFT FLYOVER. THE DURATION TESTS UTILIZED STIMULI WITH TWO DIFFERENT TIME PATTERNS AND VARIOUS SPECTRUM SHAPES OVER A RANGE OF DURATIONS FROM 4 TO 64 SECONDS. COMBINING THE RESULTS OF THESE TESTS WITH THOSE OF A PREVIOUS STUDY PROVIDED DURATION INFORMATION OVER THE RANGE FROM 1-1/2 TO 64 SECONDS. THESE DATA SUGGEST THAT THE DEPENDENCE OF PERCEIVED NOISINESS ON DURATION MIGHT WELL BE A FUNCTION WITH A CONTINUOUSLY DECREASING SLOPE, VARYING FROM -6 TO -2 PNDB PER DOUBLING OF DURATION OVER THE RANGE OF DURATIONS TESTED. FOR PRACTICAL PURPOSES, WE HAVE APPROXIMATED THE DATA BY STRAIGHT-LINE SEGMENTS FOR VARIOUS RANGES OF DURATION. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 646 775 6/10
MASSACHUSETTS INST OF TECH CAMBRIDGE

THE RELATIONS OF HEARING LOSS TO NOISE EXPOSURE. (U)

54 64P
CONTRACT: N5ORI-078(61)

UNCLASSIFIED REPORT
AVAILABILITY: ALL REQUESTS TO STANDARDS ASSOCIATION, INC., 70 E. 45TH ST., NEW YORK 17, N. Y. PRICE $1.50.

DESCRIPTORS: (*NOISE, *HEARING), (*INDUSTRIAL MEDICINE, NOISE), DEAFNESS, THRESHOLDS(PHYSIOLOGY), EXPOSURE(PHYSIOLOGY), LOW FREQUENCY, AIRCRAFT NOISE, JET ENGINE NOISE, AUDIOMETRY, TOLERANCES(PHYSIOLOGY), STANDARDS (U)

CONTENTS: DEFINITION OF VARIABLES: HEARING LOSS, NOISE, EXPOSURE; THE HUMAN PROBLEMS OF INDUSTRIAL NOISE; PRESBYCUSIS; REQUIREMENTS FOR FIELD DATA; CONTINUOUS EXPOSURE TO STEADY NOISE: THE RELATION OF HEARING LOSS AT CERTAIN FREQUENCIES TO OCTAVE BAND LEVELS; AVERAGE NET HEARING LOSS CONTOURS; TREND CURVES: ESTIMATES OF AVERAGE NET HEARING LOSS; CONFIRMATION OF THE TREND CURVES; LIMITATIONS OF TREND CURVES: SPECTRA AND EXTRAPOLATIONS; LIMITATIONS OF TREND CURVES: INTERMITTENT EXPOSURE AND NON-STEADY NOISE; LIMITATIONS OF TREND CURVES: TEMPORARY THRESHOLD SHIFT; REDUCTION IN TEMPORARY THRESHOLD SHIFT AFTER CESSATION OF EXPOSURE; EXPOSURE TO LOW-FREQUENCY NOISE; GROSS HEARING LOSSES IN THREE HYPOTHETICAL GROUPS; INTERMITTENT EXPOSURE TO STEADY NOISE: AIRPLANE NOISE; JET-ENGINE NOISE; INTERMITTENT EXPOSURE: RIVETING NOISE; IMPULSIVE NOISE: PROOF-FIRING; IMPACT NOISE: DROP FORGE; RELATION OF THRESHOLD SHIFTS TO INITIAL AUDIOGRAMS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 647 393 1/2 1/5 5/3
SYSTEMS ANALYSIS AND RESEARCH CORP BOSTON MASS

AIR TRAFFIC GROWTH, AIRLINE FINANCES, AND PUBLIC BENEFITS IN RELATION TO THE COST OF NEW PROGRAMS TO ALLEVIATE JET AIRCRAFT NOISE NEAR AIRPORTS. (U)

JAN 67 135P
REPT. NO. XG-489-67
CONTRACT: FA-67-WA-1656

UNCLASSIFIED REPORT

DESCRIPTORS: (*JET PLANE NOISE, AIRPORTS), (*AIRPORTS, CIVIL AVIATION), AIR TRAFFIC, COSTS, JET TRANSPORT PLANES, AIR TRANSPORTATION, JET ENGINE NOISE, ECONOMICS, TURBOPROP ENGINES (U)

EFFECTIVE NEW PROGRAMS FOR COPING WITH AIRCRAFT NOISE PROBLEMS AROUND AIRPORTS WILL PROBABLY INVOLVE NEW EXPENDITURES. IF SUCH COSTS ARE PASSED ON TO AIRLINE TRAFFIC, THEY WILL AFFECT TRAFFIC GROWTH THROUGH PRICE ELASTICITY OF DEMAND. A 1-PERCENT INCREASE IN FARES AND RATES IS ESTIMATED TO DECREASE TRAFFIC BY 1.3 PERCENT; A 5-PERCENT INCREASE WOULD REDUCE TRAFFIC BY 6.3 PERCENT. SEPARATE ELASTICITIES ARE ESTIMATED BY MAJOR AIRLINE GROUPS: -1.28 FOR DOMESTIC TRUNKLINE PASSENGERS, -1.6 FOR INTERNATIONAL PASSENGERS, -1.0 FOR LOCAL SERVICE PASSENGERS, AND -1.5 FOR CARGO TRAFFIC. THE AIRLINES APPEAR TO HAVE A COMFORTABLE FINANCIAL FUTURE TO COVER ALL EXPENSES AND A FAIR RETURN ON INVESTMENT, BUT NOT SUFFICIENT TO PAY LARGE ADDITIONAL EXPENSES OUT OF FORECAST REVENUES WITHOUT RAISING THEIR FARE AND RATE LEVELS. THE DIRECT BENEFICIARIES OF AIR TRANSPORTATION -- PASSENGERS AND SHIPPERS -- ARE THE LOGICAL PERSONS TO PAY FOR NOISE PROGRAMS, THROUGH THE PRICING SYSTEM OF AIRLINES AND THE COSTS OF GENERAL AVIATION FLYING. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 648 503 6/16 20/1 6/5
BOLT BERANEK AND NEWMAN INC VAN NUYS CALIF

NOISINESS JUDGMENTS OF HELICOPTER FLYOVERS. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
JAN 65 38P PEARSONS,KARL S. ;
CONTRACT: FA-65-WA-1260
MONITOR: FAA DS-67-1

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIRCRAFT NOISE, HELICOPTERS), (*THRESHOLDS(PHYSIOLOGY), AIRCRAFT NOISE), HEARING, AUDIOMETRY, ACCEPTABILITY, AUDITORY PERCEPTION, JET PLANE NOISE, TESTS (U)

JUDGMENT TESTS WERE CONDUCTED IN WHICH 21 COLLEGE STUDENTS JUDGED THE NOISINESS OR UNWANTEDNESS OF EIGHT RECORDED HELICOPTER FLYOVER NOISES VS A JET TRANSPORT FLYOVER NOISE AND A SHAPED BAND OF NOISE. TESTS WERE CONDUCTED IN AN ANECHOIC CHAMBER USING MAINLY THE METHOD OF PAIRED COMPARISONS. THESE JUDGMENT TESTS INDICATE THAT THE CALCULATED PERCEIVED NOISE LEVEL IS THE BEST PREDICTOR OF NOISINESS, FOLLOWED CLOSELY BY THE N-WEIGHTED SOUND PRESSURE LEVEL AND THE A-WEIGHTED SOUND PRESSURE LEVEL, AND FINALLY, THE OVERALL SOUND PRESSURE LEVEL. DURATION AND PURE-TONE CORRECTIONS APPLIED TO THE CALCULATED PERCEIVED NOISE LEVEL DID NOT IMPROVE THE PREDICTION ACCURACY OF THIS MEASURE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 648 748 1/5 5/3
CALIFORNIA UNIV BERKELEY INST OF TRANSPORTATION AND TRAFFIC ENGINEERING

ALLOCATING THE COSTS OF ALLEVIATING SUBSONIC JET AIRCRAFT NOISE. (U)

DESCRIPTIVE NOTE: SPECIAL REPT.,
FEB 67 27P DYGERT,PAUL K. ;

UNCLASSIFIED REPORT

DESCRIPTORS: (*NOISE, *JET AIRCRAFT), (*COSTS, NOISE), AIR TRANSPORTATION, AIRPORTS, URBAN AREAS, UNITED STATES GOVERNMENT, MONEY, TRANSPORTATION (U)

THE PROBLEM OF AIRCRAFT NOISE AROUND AIRPORTS CONTAINS TWO PRINCIPAL ELEMENTS: (1) QUIET JET AIRCRAFT ARE AND WILL REMAIN (BARRING MAJOR PROGRESS IN AIRFRAME AND ENGINE TECHNOLOGY) PROHIBITIVELY INEFFICIENT IN TERMS OF PAYLOAD AND REVENUE-GENERATING CAPACITY; (2) JET AIRPORTS ARE AND WILL REMAIN (BARRING CHANGES IN LAND-USE AND TRANSPORTATION PLANNING) CENTERS OF ECONOMIC ACTIVITY, INCLUDING DENSE RESIDENTIAL DEVELOPMENT. CONFLICTS IN PUBLIC POLICY ALSO APPEAR TO HAVE CONTRIBUTED TO THE NOISE PROBLEM. ON THE ONE HAND, IT IS IN THE PUBLIC INTEREST TO KEEP NOISE AT AS LOW A LEVEL AS POSSIBLE; ON THE OTHER HAND, AIRCRAFT BECOME TECHNICALLY LESS EFFICIENT AND MORE COSTLY AS THEY ARE MADE QUIETER. PUBLIC POLICY ENCOURAGES BOTH A QUIET SOCIETY AND THE DEVELOPMENT OF MORE EFFICIENT AIR TRANSPORTATION. FINALLY, UNDER U. S. TRANSPORTATION POLICY, AIRLINES ARE PRIVATE ENTERPRISES, FREE TO MAKE THEIR OWN BUSINESS DECISIONS WITHIN ECONOMIC AND SAFETY CONSTRAINTS. SINCE THE AIR CARRIERS DO NOT PAY THE COSTS OF AIRCRAFT NOISE, THEY TEND TO IGNORE THESE COSTS IN MAKING BUSINESS DECISIONS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 650 267 1/5 13/2
TRANSPORTATION CONSULTANTS INC WASHINGTON D C

COMPATIBLE LAND USE PLANNING ON AND AROUND AIRPORTS. (U)

JUN 66 127P
CONTRACT: FA-65-WA-1357

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-650 271.

DESCRIPTORS: (*AIRPORTS, *URBAN PLANNING), (*URBAN AREAS, *AIRCRAFT NOISE), HAZARDS, MANAGEMENT ENGINEERING, SAFETY, RUNWAYS, TAKEOFF, LANDING, BUILDINGS, AIR TRAFFIC (U)

DATA REPORTED WERE OBTAINED FROM OPERATIONS AT 120 AIRPORTS IN THE U.S. AND CANADA. AN EXAMINATION OF PRESENT AND PAST EXPERIENCE WITH NOISE PROBLEMS AT MANY OF THESE AIRPORTS CAN BE BENEFICIAL TO OTHER AIRPORTS IN AVOIDING OR CORRECTING THE SAME TYPE OF PROBLEM. THE FOLLOWING POINTS ARE DISCUSSED: SUMMARY OF COMPATIBLE AND INCOMPATIBLE LAND USES ON OR AROUND AIRPORTS; THE NOISE PROBLEM; THE NOISE AND HAZARD PROBLEM IN AIRPORT PLANNING; IDENTIFICATION OF NOISE AREAS AND OBSTRUCTIONS IN AIRPORT PLANNING; AND TABULATION OF LAND USES. NAMES AND ADDRESSES OF AIRPORT EXECUTIVES AND PLANNERS PARTICIPATING IN THE LAND USE EVALUATION SURVEY ARE ALSO PROVIDED. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 650 271 1/5 13/2
TRANSPORTATION CONSULTANTS INC WASHINGTON D C

AIDS AVAILABLE FOR COMPATIBLE LAND USE PLANNING AROUND AIRPORTS. (U)

JUN 66 101P
CONTRACT: FA-65-WA-1357

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-650 267.

DESCRIPTORS: (*AIRPORTS, PROBLEM SOLVING), (*URBAN PLANNING, UNITED STATES GOVERNMENT), URBAN AREAS, ENVIRONMENT, HAZARDS, AIRCRAFT NOISE, MANAGEMENT ENGINEERING, COSTS, HOUSING(DWELLINGS), FEDERAL BUDGE(U)

EACH AND EVERY AIRPORT, AND ITS ENVIRONS, IS DIFFERENT FROM EVERY OTHER AIRPORT, AND MUST BE CONSIDERED INDIVIDUALLY IN SOLVING ITS PROBLEMS OF INCOMPATIBLE LAND USES, OR IN PROVIDING FOR COMPATIBLE LAND USES IN THE AIRPORT AREA. THE GOVERNMENT AND OTHER AIDS SET FORTH IN THIS REPORT AS MEANS OF REGULATING LAND USES AROUND AIRPORTS WILL PROVIDE THE GREATEST BENEFIT TO THE COMMUNITY AS A WHOLE WHEN THEY ARE USED IN CONJUNCTION WITH COMPREHENSIVE PLANNING FOR THE DEVELOPMENT OF THE COMMUNITY. THE PRESENT MODEL STATE AIRPORT ZONING ENABLING ACT CONSIDERS ONLY 'AIRPORT HAZARD AREAS' AND DOES NOT PROVIDE FOR CONSIDERATION OF 'INCOMPATIBLE LAND USE AREAS' OR AIRCRAFT NOISE AND OTHER AIRCRAFT-INDUCED OPERATIONAL PROBLEMS. THERE IS A NEED FOR THE DEVELOPMENT OF MODEL HOUSING AND BUILDING CODES THAT SPECIFY NOISE CONSTRUCTION STANDARDS FOR BUILDINGS IN AIRPORT ENVIRONS. SUCH CODES COULD BE MADE PART OF ZONING REGULATIONS AROUND AIRPORTS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 654 927 20/1 1/2
BOLT BERANEK AND NEWMAN INC VAN NUYS CALIF

FREQUENCY SPECTRUM AND TIME DURATION DESCRIPTIONS OF AIRCRAFT FLYOVER NOISE SIGNALS. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
MAY 67 96P BISHOP,DWIGHT E. ;
REPT. NO. BBN-1507
CONTRACT: FA-65-WA-1260
MONITOR: FAA-ADS 67-6

UNCLASSIFIED REPORT

DESCRIPTORS: (*JET PLANE NOISE, ACOUSTIC PROPERTIES), ACOUSTIC SIGNALS, JET TRANSPORT PLANES, AUDITORY PERCEPTION, FREQUENCY, TIME, MAGNETIC TAPE, ACCEPTABILITY (U)

THIRTY-TWO FLYOVER NOISE RECORDINGS WERE ANALYZED AND COMPARED WITH RESPECT TO CHARACTERISTICS CURRENTLY USED TO ASSESS THE NOISINESS OF THE FLYOVER SIGNAL--MAXIMUM LEVELS, DURATION, AND PRESENCE OF DISCRETE FREQUENCY COMPONENTS. THE RECORDINGS INCLUDED TAKEOFF AND LANDING SIGNALS OF MOST MAJOR TYPES OF COMMERCIAL JET TRANSPORT AIRCRAFT. COMPARISONS ARE MADE OF THE CALCULATED PERCEIVED NOISE LEVELS BASED ON MAXIMUM OCTAVE AND ONE-THIRD OCTAVE BAND MEASUREMENTS AND ON ONE-THIRD OCTAVE BAND NOISE LEVELS MEASURED AT THE TIME THE N-WEIGHTED SOUND LEVEL REACHED A MAXIMUM. THE TIME DURATIONS OBTAINED FROM OVERALL SOUND PRESSURE LEVEL, CALCULATED PERCEIVED NOISE LEVEL, N-WEIGHTED AND A-WEIGHTED TIME HISTORIES ARE COMPARED. CORRECTIONS TO THE CALCULATED PERCEIVED NOISE LEVELS FOR THE PRESENCE OF DISCRETE FREQUENCY COMPONENTS AS CALCULATED BY TWO PROCEDURES ARE ALSO COMPARED. BASIC FLYOVER NOISE SIGNAL CHARACTERISTICS AND DATA REDUCTION CRITERIA, TECHNIQUES AND LIMITATIONS ARE ALSO DISCUSSED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 657 633 20/1 1/2 5/10
BOLT BERANEK AND NEWMAN INC LOS ANGELES CALIF

DESCRIPTIONS OF FLYOVER NOISE SIGNALS PRODUCED BY VARIOUS JET TRANSPORT AIRCRAFT. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
AUG 67 67P BISHOP,DWIGHT E. ;
CONTRACT: FA-65-WA-1260
MONITOR: FAA-DS 67-18

UNCLASSIFIED REPORT

DESCRIPTORS: (*JET PLANE NOISE, ACOUSTIC SIGNALS), (*ACOUSTIC SIGNALS, AUDITORY PERCEPTION), SPECTROSCOPY, FREQUENCY, MEASUREMENT, TRANSPORT AIRCRAFT, MATHEMATICAL ANALYSIS (U)

THE REPORT PROVIDES DESCRIPTIONS OF MAXIMUM LEVELS AND TIME DURATIONS FOR 45 FLYOVER NOISE SIGNALS PRODUCED BY A VARIETY OF TURBOJECT AND TURBOFAN TRANSPORT AIRCRAFT IN CURRENT AIRLINE SERVICE. THE DESCRIPTIONS ARE BASED UPON ONE-THIRD OCTAVE BAND NOISE SPECTRA DETERMINED AT ONE-HALF SECOND INTERVALS THROUGHOUT THE FLYOVER TIME HISTORIES. COMPARISONS ARE PROVIDED BETWEEN INTEGRATED PERCEIVED NOISE LEVELS, EFFECTIVE PERCEIVED NOISE LEVELS, PERCEIVED NOISE LEVELS CALCULATED FROM THE MAXIMUM THIRD-OCTAVE BAND NOISE LEVELS OCCURRING DURING THE FLYOVER AND N-WEIGHTED NOISE LEVELS. COMPARISON OF VARIOUS DURATION MEASUREMENTS AND CORRECTIONS ARE ALSO PRESENTED FOR DURATIONS MEASURED AT LEVELS OF 10 DB AND 20 DB DOWN FROM THE MAXIMUM FLYOVER LEVELS. COMPARISONS INDICATE HIGH CORRELATION AMONG MANY OF THE DIFFERENT MEASURES DESCRIBING MAXIMUM NOISE LEVELS AND DURATION. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 658 448 20/1 1/2 1/3
AEROSPACE MEDICAL RESEARCH LABS WRIGHT-PATTERSON AFB OHIO

EVALUATION OF NOISE PROBLEMS ANTICIPATED WITH FUTURE VTOL AIRCRAFT. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
MAY 67 24P COLE,JOHN N. ;ENGLAND, ROBERT T. ;
REPT. NO. AMRL-TR-66-245
PROJ: AF-7231
TASK: 723104

UNCLASSIFIED REPORT

DESCRIPTORS: (*VERTICAL TAKEOFF AIRCRAFT, NOISE), (*AIRPLANE ENGINE NOISE, VERTICAL TAKEOFF AIRCRAFT), PROPULSION SYSTEMS, TAKEOFF, AIRCRAFT LANDINGS, AIRPORTS, DETECTION, DESIGN (U)
IDENTIFIERS: EVALUATION (U)

THE POTENTIAL NOISE PROBLEMS ANTICIPATED WITH FUTURE VTOL AIRCRAFT ARE ANALYZED AND DISCUSSED IN GENERAL TERMS, AND A BRIEF REVIEW OF THE BASIC PRINCIPLES OF NOISE GENERATION OF VARIOUS TYPES OF PROPULSION SYSTEMS PROPOSED FOR VTOL IS INCLUDED. PRIMARY CONSIDERATION IS GIVEN TO THE NOISE ENVIRONMENTS PRODUCED IN AREAS ADJACENT TO VTOL SITES, SINCE THEY COULD CAUSE THE MOST SERIOUS NOISE PROBLEM LIMITING THE USEFULNESS OF VTOL AIRCRAFT. CONTOURS OF PERCEIVED NOISE LEVELS ARE COMPARED FOR DIFFERENT TAKEOFF AND LANDING PROFILES OF 3-4 PASSENGER, 60 PASSENGER, AND 25 TON-LIFT-CRANE VTOL AIRCRAFT. CRITERIA AND METHODS FOR ASSESSING THE RESPONSE OF COMMUNITIES TO NOISE FROM V-PORT OPERATIONS ARE DISCUSSED ALONG WITH THE PROBLEM OF DETECTION OF MILITARY VTOL AIRCRAFT BY MEANS OF NOISE. RECOMMENDATIONS ARE GIVEN ON THE REQUIREMENTS FOR FUTURE RESEARCH ON THESE NOISE PROBLEMS WITH EMPHASIS ON THE NEED FOR CONSIDERING NOISE AS AN INTEGRAL PART OF THE DESIGN, SELECTION, AND TEST OF VTOL AIRCRAFT. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 658 755 5/10 20/1
BOLT BERANEK AND NEWMAN INC VAN NUYS CALIF

CATEGORY SCALING JUDGMENT TESTS ON MOTOR VEHICLE AND AIRCRAFT NOISE. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUL 67 115P PEARSONS,KARL S. ;HORONJEFF, RICHARD D. ;
REPT. NO. BBN-1516
CONTRACT: FA-65-WA-1260
MONITOR: FAA-DS 67-8

UNCLASSIFIED REPORT

DESCRIPTORS: (*NOISE, *PSYCHOLOGICAL TESTS), AIRCRAFT NOISE, VEHICLES, ENGINE NOISE, PERCEPTION(PSYCHOLOGY), ACCEPTABILITY (U)

SUBJECTS WERE ASKED TO RATE ON VARIOUS ADJECTIVE CATEGORY SCALES THE SOUNDS PRODUCED BY AIRCRAFT FLYOVERS AND MOTOR VEHICLE DRIVEBYS. RECORDED SOUNDS WERE RATED BY COLLEGE STUDENTS AND COMMUNITY RESIDENTS AT LOCATIONS NEAR A HIGHWAY AND TWO AIRPORTS. THE LABORATORY TESTS INDICATED THAT ALL OF THE CATEGORY SCALES WERE SIMILAR IN THEIR RELATIONSHIP WITH ACOUSTICAL MEASURES, ALTHOUGH, IN GENERAL, THE NOISINESS SCALE EXHIBITED THE HIGHEST CORRELATION. THE CORRELATIONS BETWEEN THE NOISINESS SCALE AND VARIOUS ACOUSTICAL MEASURES FOR THE LABORATORY AND FIELD TESTS WERE ALL ABOUT EQUAL, WITH PERCEIVED NOISE LEVEL, CALCULATED OR ESTIMATED FROM N-LEVEL MEASUREMENTS, EXHIBITING THE HIGHEST CORRELATION, FOLLOWED BY LOUDNESS LEVEL AND A-LEVEL. THE LOWEST CORRELATION WAS EXHIBITED BY OVERALL SOUND PRESSURE LEVEL. BOTH THE LABORATORY AND FIELD RESULTS WERE IN GOOD AGREEMENT AND INDICATED LITTLE DIFFERENCE IN RATINGS VS LEVEL AMONG VARIOUS SOUND STIMULI EMPLOYED DURING THE TESTS. AGREEMENT WAS GOOD WITH THE RESULTS OF OTHER INVESTIGATORS AT THE HIGHEST LEVELS, DIVERGING AT THE MORE MODERATE LEVELS. THESE COMPARISONS INDICATE THE INFLUENCE OF STIMULUS RANGE ON THE MAGNITUDE AND SLOPE OF THE RELATIONSHIP BETWEEN THE SUBJECTIVE RATING VS A PHYSICAL NOISE MEASURE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 660 702 20/1 1/5
SOCIETY OF AUTOMOTIVE ENGINEERS INC NEW YORK

NOISE EXPOSURE FORECASTS FOR LOS ANGELES INTERNATIONAL AIRPORT. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.
AUG 67 13P
CONTRACT: FA-67-WA-1706
MONITOR: FAA-ADS 67-17

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPT. ON 'TECHNIQUE FOR DEVELOPING NOISE EXPOSURE FORECASTS'. SEE ALSO AD-660 705.

DESCRIPTORS: (*AIRCRAFT NOISE, AIRPORTS), (*JET ENGINE NOISE, *AIRPORTS), AIRCRAFT LANDINGS, FLIGHT PATHS, RUNWAYS, JET AIRCRAFT, EXPOSURE(PHYSIOLOGY), TRANSPORT AIRCRAFT, PERIODIC VARIATIONS, COMPUTER PROGRAMS, MEASUREMENT, MAPS, TABLES(DATA), CALIFORNIA (U)

THE GENERAL PROCEDURES USED IN PLOTTING THE NEF CONTOURS FOR THE LOS ANGELES INTERNATIONAL AIRPORT VICINITY ARE DESCRIBED AND THE COMPUTER PROGRAM USED IS DESCRIBED IN APPENDIX F1 OF THE REPORT TO WHICH THIS IS A SUPPLEMENT. THE INPUT DATA ON WHICH THESE NEF CONTOURS ARE BASED HAVE BEEN PROVIDED FROM SEVERAL SOURCES AS FOLLOWS: AIRPORT OPERATIONS DATA WERE SUPPLIED BY THE FAA: (NUMBER OF OPERATIONS, TYPE OF AIRCRAFT, FLIGHT PATH, TIME OF DAY, RUNWAY UTILIZATION). AIRCRAFT PERFORMANCE DATA WERE SUPPLIED BY THE AIRCRAFT MANUFACTURERS. AIRCRAFT GROSS WEIGHT DISTRIBUTION BY AIRCRAFT TYPE FOR OPERATIONS FROM LOS ANGELES INTERNATIONAL WERE SUPPLIED BY THE AIRLINES. THE PROCEDURE FOR COMPUTING NEF CONTOURS WAS DEVELOPED AND APPROVED BY SAE COMMITTEE R2.5. THE COMPUTING AND PLOTTING WORK WAS ACCOMPLISHED BY THE AIRCRAFT MANUFACTURERS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 660 703 20/1 1/5
SOCIETY OF AUTOMOTIVE ENGINEERS INC NEW YORK

NOISE EXPOSURE FORECASTS FOR J. F. KENNEDY INTERNATIONAL AIRPORT. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.
AUG 67 12P
CONTRACT: FA-67-WA-1706
MONITOR: FAA-ADS 67-15

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPT. ON 'TECHNIQUE FOR DEVELOPING NOISE EXPOSURE FORECASTS'. SEE ALSO AD-660 702.

DESCRIPTORS: (*AIRCRAFT NOISE, AIRPORTS), (*JET ENGINE NOISE, *AIRPORTS), AIRCRAFT LANDINGS, FLIGHT PATHS, RUNWAYS, JET AIRCRAFT, EXPOSURE(PHYSIOLOGY), TRANSPORT AIRCRAFT, PERIODIC VARIATIONS, COMPUTER PROGRAMS, MEASUREMENT, MAPS, TABLES(DATA), NEW YORK (U)

THE GENERAL PROCEDURES USED IN PLOTTING THE NEF CONTOURS FOR THE J. F. KENNEDY AIRPORT VICINITY ARE DESCRIBED AND THE COMPUTER PROGRAM USED IS DESCRIBED IN APPENDIX F1 OF THE REPORT TO WHICH THIS IS A SUPPLEMENT. THE INPUT DATA ON WHICH THESE NEF CONTOURS ARE BASED HAVE BEEN PROVIDED FROM SEVERAL SOURCES AS FOLLOWS: AIRPORT OPERATION DATA WERE SUPPLIED BY THE FAA; (NUMBER OF OPERATIONS, TYPE OF AIRCRAFT, FLIGHT PATH, TIME OF DAY, RUNWAY UTILIZATION). AIRCRAFT PERFORMANCE DATA WERE SUPPLIED BY THE AIRCRAFT MANUFACTURERS. AIRCRAFT GROSS WEIGHT DISTRIBUTION BY AIRCRAFT TYPE FOR OPERATIONS FROM JFK WERE SUPPLIED BY THE AIRLINES. THE PROCEDURE FOR COMPUTING NEF CONTOURS ARE DEVELOPED AND APPROVED BY SAE COMMITTEE R2.5. THE COMPUTING AND PLOTTING WORK WAS ACCOMPLISHED BY THE AIRCRAFT MANUFACTURERS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 660 704 20/1 1/5
SOCIETY OF AUTOMOTIVE ENGINEERS INC NEW YORK

NOISE EXPOSURE FORECASTS FOR O'HARE INTERNATIONAL AIRPORT. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.
AUG 67 12P
CONTRACT: FA-67-WA-1706
MONITOR: FAA-ADS 67-16

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPT. ON 'TECHNIQUE FOR DEVELOPING NOISE EXPOSURE FORECASTS'. SEE ALSO AD-660 703.

DESCRIPTORS: (*AIRCRAFT NOISE, AIRPORTS), (*JET ENGINE NOISE, *AIRPORTS), AIRCRAFT LANDINGS, FLIGHT PATHS, RUNWAYS, JET AIRCRAFT, EXPOSURE(PHYSIOLOGY), TRANSPORT AIRCRAFT, PERIODIC VARIATIONS, COMPUTER PROGRAMS, MEASUREMENT, MAPS, TABLES(DATA), ILLINOIS (U)

THE GENERAL PROCEDURES USED IN PLOTTING THE NEF CONTOURS FOR THE O'HARE AIRPORT VICINITY ARE DESCRIBED AND THE COMPUTER PROGRAM USED IS DESCRIBED IN APPENDIX F1 OF THE REPORT TO WHICH THIS IS A SUPPLEMENT. THE INPUT DATA ON WHICH THESE NEF CONTOURS ARE BASED HAVE BEEN PROVIDED FROM SEVERAL SOURCES AS FOLLOWS: AIRPORT OPERATIONS DATA WERE SUPPLIED BY THE FAA; (NUMBER OF OPERATIONS, TYPE OF AIRCRAFT, FLIGHT PATH, TIME OF DAY, RUNWAY UTILIZATION). AIRCRAFT PERFORMANCE DATA WERE SUPPLIED BY THE AIRCRAFT MANUFACTURERS. AIRCRAFT GROSS WEIGHT DISTRIBUTION BY AIRCRAFT TYPE FOR OPERATIONS FROM O'HARE WERE SUPPLIED BY THE AIRLINES. THE PROCEDURE FOR COMPUTING NEF CONTOURS WAS DEVELOPED AND APPROVED BY SAE COMMITTEE A2.5. THE COMPUTING AND PLOTTING WORK WAS ACCOMPLISHED BY THE AIRCRAFT MANUFACTURERS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 660 705 20/1 1/5
SOCIETY OF AUTOMOTIVE ENGINEERS INC NEW YORK

TECHNIQUE FOR DEVELOPING NOISE EXPOSURE FORECASTS. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.
AUG 67 129P
CONTRACT: FA-67-WA-1706
MONITOR: FAA-ADS 67-14

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-660 704.

DESCRIPTORS: (*AIRCRAFT NOISE, AIRPORTS), (*JET ENGINE NOISE, *AIRPORTS), AIRCRAFT LANDINGS, FLIGHT PATHS, RUNWAYS, JET AIRCRAFT, EXPOSURE(PHYSIOLOGY), TRANSPORT AIRCRAFT, PERIODIC VARIATIONS, COMPUTER PROGRAMS, MEASUREMENT, TABLES(DATA) (U)

A METHODOLOGY CALLED NOISE EXPOSURE FORECASTS (NEF) IS DEVELOPED FOR DESCRIBING AIRCRAFT NOISE EXPOSURE IN THE VICINITY OF THE TAKEOFF AND APPROACH FLIGHT PATHS OF AN AIRPORT. IN SUPPORT OF THIS METHODOLOGY AN IMPROVED MEASURE OF THE SUBJECTIVE RESPONSE TO AIRCRAFT FLYOVER NOISE CALLED EFFECTIVE PERCEIVED NOISE LEVEL (EPNL) HAS BEEN DERIVED. THIS MEASURE INCLUDES CORRECTIONS FOR PURE TONE COMPONENTS AND DURATION. OTHER ELEMENTS NECESSARY FOR THE CALCULATION OF NEF ARE NUMBER OF EXPOSURES AND TIME OF DAY. NEF CONTOUR ARE TRANSLATED INTO GUIDELINES FOR COMPATIBLE LAND USE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 660 706 1/5 20/1 13/2
BOLT BERANEK AND NEWMAN INC VAN NUYS CALIF

PROCEDURES FOR DEVELOPING NOISE EXPOSURE FORECAST AREAS FOR AIRCRAFT FLIGHT OPERATIONS. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
AUG 67 62P BISHOP,DWIGHT E. ;HORONJEFF, RICHARD D. ;
REPT. NO. BBN-1511
CONTRACT: FA-67-WA-1705
MONITOR: FAA-ADS 67-10

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-660 708, AD-660 709, AD-660 710.

DESCRIPTORS: (*AIRPORTS, *URBAN AREAS), (*URBAN PLANNING, *JET ENGINE NOISE), AIR TRAFFIC, JET PLANE NOISE, PSYCHOACOUSTICS, FLIGHT PATHS, COMMERCIAL PLANES, TAKEOFF, LANDING (U)

THE REPORT OUTLINES PROCEDURES AND SUPPORTING TECHNICAL DATA FOR DETERMINING NOISE EXPOSURE FORECAST (NEF) AREA, RESULTING FROM TAKEOFF AND LANDING OPERATIONS IN THE VICINITY OF AIRPORTS. IN COMPANION REPORTS, THESE PROCEDURES HAVE BEEN APPLIED TO DETERMINE NEF AREAS IN THE VICINITY OF J. F. KENNEDY, O'HARE AND LOS ANGELES INTERNATIONAL AIRPORTS FOR 1965, 1970 AND 1975. THE NEF AREAS HAVE DIFFERING LAND USE COMPATIBILITY WITH RESPECT TO AIRCRAFT NOISE; HENCE, THE NEF AREAS MAY BE USED AS A GUIDE TO LAND USE PLANNING AND ZONING. THE NEF AREAS ARE BASED UPON THE AIRCRAFT NOISE DESCRIBED IN TERMS OF THE EFFECTIVE PERCEIVED NOISE LEVELS (WHICH INCLUDES CORRECTIONS FOR DURATION AND PRESENCE OF DISCRETE FREQUENCIES) PLUS ADJUSTMENTS FOR THE NUMBER OF OPERATIONS FOR DAYTIME AND NIGHTTIME PERIODS. NOISE AND TAKEOFF AND LANDING PROFILE INFORMATION IS GIVEN FOR ESTIMATING EFFECTIVE PERCEIVED NOISE LEVELS FOR THE TAKEOFF AND LANDINGS OF CURRENT LARGE JET AIRCRAFT AND FOR FUTURE LARGE AIRCRAFT EXPECTED TO BE IN OPERATION WITHIN THE FORECAST PERIODS. COMPUTER-AIDED PROCEDURES EMPLOYED IN DETERMINING NEF CONTOURS ARE ALSO OUTLINED. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 660 708 1/5 20/1 13/2
BOLT BERANEK AND NEWMAN INC VAN NUYS CALIF

1965, 1970 AND 1975 NOISE EXPOSURE FORECAST AREAS FOR CHICAGO O'HARE INTERNATIONAL AIRPORT. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
AUG 67 22P BISHOP,DWIGHT E. ;HORONJEFF, RICHARD D. ;
REPT. NO. BBN-1509
CONTRACT: FA-67-WA-1705
MONITOR: FAA-ADS 67-12

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPT. ON 'PROCEDURES FOR DEVELOPING NOISE EXPOSURE FORECAST AREAS FOR AIRCRAFT FLIGHT OPERATIONS.' SEE ALSO AD-660 706.

DESCRIPTORS: (*AIRPORTS, *URBAN AREAS), (*URBAN PLANNING, *JET ENGINE NOISE), AIR TRAFFIC, JET PLANE NOISE, FLIGHT PATHS, COMMERCIAL PLANES, TAKEOFF, LANDING, BUILDINGS, CONSTRUCTION, VOICE COMMUNICATION(U)

NOISE EXPOSURE FORECAST (NEF) AREAS RESULTING FROM TAKEOFF AND LANDING OPERATIONS AT CHICAGO O'HARE INTERNATIONAL AIRPORT ARE SHOWN FOR 1965, 1970, AND 1975. THE NEF AREAS DEPICT AREAS OF DIFFERING LAND-USE COMPATIBILITY WITH RESPECT TO AIRCRAFT NOISE; HENCE, THE NEF AREAS MAY BE USED AS A GUIDE TO LAND-USE PLANNING OR ZONING. THE NEF AREAS ARE BASED UPON AIRCRAFT NOISE DESCRIBED IN TERMS OF EFFECTIVE PERCEIVED NOISE LEVELS, PLUS CONSIDERATION OF THE NUMBER OF OPERATIONS PER DAYTIME AND NIGHTTIME PERIOD. NEF AREAS B AND C SHOW SIZABLE INCREASES BETWEEN 1965 AND 1970, PARTICULARLY IN NORTHEAST AND SOUTHWEST DIRECTIONS. BETWEEN 1970 AND 1975, FURTHER MODERATE INCREASES IN NEF AREAS B AND C ARE FORECAST. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 660 709 1/5 20/1 13/2
BOLT BERANEK AND NEWMAN INC VAN NUYS CALIF

1965, 1970 AND 1975 NOISE EXPOSURE FORECAST AREAS FOR LOS ANGELES INTERNATIONAL AIRPORT. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
AUG 67 22P BISHOP,DWIGHT E. ;HORONJEFF, RICHARD D. ;
REPT. NO. BBN-1508
CONTRACT: FA-67-WA-1705
MONITOR: FAA-ADS 67-13

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPT. ON 'PROCEDURES FOR DEVELOPING NOISE EXPOSURE FORECAST AREAS FOR AIRCRAFT FLIGHT OPERATIONS.' SEE ALSO AD-660 706.

DESCRIPTORS: (*AIRPORTS, *URBAN AREAS), (*URBAN PLANNING, *JET ENGINE NOISE), AIR TRAFFIC, JET PLANE NOISE, FLIGHT PATHS, COMMERCIAL PLANES, TAKEOFF, LANDING, RUNWAYS (U)

NOISE EXPOSURE FORECAST (NEF) AREAS RESULTING FROM TAKEOFF AND LANDING OPERATIONS AT LOS ANGELES INTERNATIONAL AIRPORT ARE SHOWN FOR 1965, 1970, AND 1975. THE NEF AREAS DEPICT AREAS OF DIFFERING LAND-USE COMPATIBILITY WITH RESPECT TO AIRCRAFT NOISE; HENCE, THE NEF AREAS MAY BE USED AS A GUIDE TO LAND-USE PLANNING OR ZONING. THE NEF AREAS ARE BASED UPON AIRCRAFT NOISE DESCRIBED IN TERMS OF EFFECTIVE PERCEIVED NOISE LEVELS, PLUS CONSIDERATION OF THE NUMBER OF OPERATIONS PER DAYTIME AND NIGHTTIME PERIOD. NEF AREAS B AND C SHOW A RELATIVELY LARGE INCREASE BETWEEN 1965 AND 1970 REFLECTING A LARGE INCREASE IN THE NUMBER OF AIRPORT OPERATIONS AND EXPANDED USE OF RUNWAYS 24L AND 24R IN 1970. BETWEEN 1970 AND 1975, ONLY A SLIGHT INCREASE IN NEF AREAS B AND C IS OBSERVED, SINCE ONLY A MODERATE INCREASE IN TOTAL NUMBER OF OPERATIONS HAS BEEN FORECAST. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 660 710 1/5 20/1 13/2
BOLT BERANEK AND NEWMAN INC VAN NUYS CALIF

1965, 1970 AND 1975 NOISE EXPOSURE FORECAST AREAS FOR JOHN F. KENNEDY AIRPORT, NEW YORK. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
AUG 67 22P BISHOP,DWIGHT F. ;HORONJEFF, RICHARD D. ;
REPT. NO. BBN-1510
CONTRACT: FA-67-WA-1705
MONITOR: FAA-ADS 67-11

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPT. ON 'PROCEDURES FOR DEVELOPING NOISE EXPOSURE FORECAST AREAS FOR AIRCRAFT FLIGHT OPERATIONS.' SEE ALSO AD-660 706.

DESCRIPTORS: (*AIRPORTS, *URBAN AREAS), (*URBAN PLANNING, *JET ENGINE NOISE), AIR TRAFFIC, JET PLANE NOISE, FLIGHT PATHS, COMMERCIAL PLANES, TAKEOFF, LANDING, BUILDINGS, CONSTRUCTION, VOICE COMMUNICATION(U)

NOISE EXPOSURE FORECAST (NEF) AREAS RESULTING FROM TAKEOFF AND LANDING OPERATIONS AT JOHN F. KENNEDY AIRPORT, NEW YORK, ARE SHOWN FOR 1965, 1970, AND 1975. THE NEF AREAS DEPICT AREAS OF DIFFERING LAND-USE COMPATIBILITY WITH RESPECT TO AIRCRAFT NOISE; HENCE, THE NEF AREAS MAY BE USED AS A GUIDE TO LAND-USE PLANNING OR ZONING. THE NEF AREAS ARE BASED UPON AIRCRAFT NOISE DESCRIBED IN TERMS OF EFFECTIVE PERCEIVED NOISE LEVELS, PLUS CONSIDERATION OF THE NUMBER OF OPERATIONS PER DAYTIME AND NIGHTTIME PERIOD. NEF AREAS B AND C SHOW SIZABLE INCREASES BETWEEN 1965 AND 1970. BETWEEN 1970 AND 1975, A VERY MODERATE INCREASE IN NEF AREAS B AND C IS FORECAST. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 660 712 17/2 20/1 1/2
BOLT BERANEK AND NEWMAN INC CAMBRIDGE MASS

THE SPEECH INTERFERENCE EFFECTS OF AIRCRAFT NOISE. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
SEP 67 79P WILLIAMS,C. E. ;STEVENS,K. N. ;HECKER,M. H. L. ;PEARSONS,K. S. ;
CONTRACT: FA-66-WA-1566
MONITOR: FAA-ADS 67-19

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIRCRAFT NOISE, INTERFERENCE), (*SPEECH, *INTELLIGIBILITY), AUDITORY PERCEPTION, ACCEPTABILITY, VOICE COMMUNICATIONS, JET ENGINE NOISE, COMMUNICATION AND RADIO SYSTEMS, TELEVISION SYSTEMS, TELEPHONE SYSTEMS (U)

FOR VARIOUS AIRCRAFT FLYOVERS, SPEECH INTELLIGIBILITY SCORES AND CALCULATIONS OF AI (ARTICULATION INDEX) WERE OBTAINED AS FUNCTIONS OF TIME. THESE DATA WERE THEN USED TO ESTABLISH THE RELATION BETWEEN AI AND INTELLIGIBILITY FOR TIME-VARYING NOISE. A SIMILAR RELATION WAS ALSO OBTAINED FOR STEADY-STATE SIMULATED JET NOISE. A COMPARISON OF THE TWO RELATIONS SHOWED THAT FOR A GIVEN AI, THE TIME-VARYING NOISE PROVIDED LESS MASKING THAN THE STEADY-STATE NOISE. THE DIFFERENCE FOUND BETWEEN THE TWO RELATIONS CAUTIONS AGAINST THE USE OF RELATIONS ESTABLISHED FOR STEADY-STATE NOISE TO PREDICT INTELLIGIBILITY SCORES THAT MIGHT BE OBTAINED WITH TIME-VARYING NOISE. THE AIRCRAFT FLYOVERS EMPLOYED IN THE INTELLIGIBILITY TESTS WERE ALSO PRESENTED TO LISTENERS WHO WERE ASKED TO RATE THEM IN TERMS OF THEIR ACCEPTABILITY IN THE HOME. USING A RATING SCALE HAVING THE CATEGORIES 'OF NO CONCERN,' 'ACCEPTABLE,' 'BARELY ACCEPTABLE,' AND 'UNACCEPTABLE,' JUDGMENTS WERE OBTAINED IN THREE LISTENING SITUATIONS: (1) IN THE PRESENCE OF RADIO-TV SPEECH; (2) IN THE ABSENCE OF SPEECH; AND (3) IN THE PRESENCE OF TELEPHONE SPEECH. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 663 904 20/1 6/16
BOLT BERANEK AND NEWMAN INC VAN NUYS CALIF

GROWTH OF NOISINESS FOR TONES AND BANDS OF NOISE AT DIFFERENT FREQUENCIES. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
DEC 67 88P PARNELL,JOHN E. ;NAGEL,
DAVID C. ;PARRY,HUGH J. ;
CONTRACT: FA-65-WA-1180
MONITOR: FAA ADS-67-21

UNCLASSIFIED REPORT

DESCRIPTORS: (*NOISE, *AUDITORY PERCEPTION), (*AIRCRAFT NOISE, AUDITORY PERCEPTION), AUDITORY SIGNALS, FREQUENCY, INTENSITY, TEST METHODS, MATHEMATICAL PREDICTION, DIAGRAMS (U)

JUDGMENT TESTS WERE CONDUCTED TO MEASURE THE GROWTH OF NOISINESS FOR TONES AND NARROW BANDS OF NOISE UNDER VARIOUS LISTENING CONDITIONS. THE GROWTH OF NOISINESS FOR A 1 KHZ TONE AND AN OCTAVE BAND OF NOISE CENTERED AT 1 KHZ WERE MEASURED USING BOTH THE METHOD OF ADJUSTMENT AND A MAGNITUDE ESTIMATION METHOD. EQUAL NOISINESS CONTOURS WERE DETERMINED FOR SELECTED LISTENING CONDITIONS IN ORDER TO MEASURE THE GROWTH OF NOISINESS AT FREQUENCIES OTHER THAN 1 KHZ. THE GROWTH OF NOISINESS WAS FOUND TO DEPEND STRONGLY ON TEST METHOD WITH THE MAGNITUDE ESTIMATION TESTS GIVING SIGNIFICANTLY LARGER VALUES FOR DOUBLING OR HALVING OF PERCEIVED NOISINESS. EQUAL NOISINESS CONTOURS ARE SHOWN FOR PURE TONES IN A FREE FIELD, ONE-THIRD OCTAVE BANDS OF NOISE IN A FREE FIELD AND ONE-THIRD OCTAVE BANDS OF NOISE IN A DIFFUSE FIELD. IT WAS CONCLUDED THAT THE SPECIFIC VALUE USED FOR THE GROWTH OF NOISINESS DID NOT SIGNIFICANTLY AFFECT THE CALCULATION OF THE RELATIVE PNL VALUES FOR MANY DIFFERENT SPECTRA. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 664 040 1/3 1/5
RAND CORP SANTA MONICA CALIF

AIR TRANSPORTATION IN THE 1970'S: PROBLEMS AND OPPORTUNITIES, (U)

JAN 68 38P CARTAINO,T. F. ;
REPT. NO. RM-5268-PR
CONTRACT: F44620-67-C-0045

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIR TRANSPORTATION, PREDICTIONS), PLANNING, COMMERCIAL PLANES, URBAN PLANNING, HELICOPTERS, AIRCRAFT, AIRPORTS, AIRCRAFT NOISE, ECONOMICS, TERMINAL FLIGHT FACILITIES, SHORT TAKEOFF AIRCRAFT, VERTICAL TAKEOFF AIRCRAFT, AIRFRAMES, AVIATION SAFETY, SUPERSONIC AIRCRAFT, JET TRANSPORT PLANES, SUBSONIC CHARACTERISTICS (U)

AN EXAMINATION IS MADE OF THE PROBLEMS, AND POSSIBLE SOLUTIONS, OF COMMERCIAL AIR TRANSPORTATION IN THE 1970'S, WITH EMPHASIS ON SUBSONIC PASSENGER VEHICLES THAT WILL BE IN OPERATION BY 1975. MAJOR AIR TRANSPORTATION PROBLEMS IN THE 1970'S WILL BE CENTERED IN AND AROUND THE TERMINAL AREAS. AIRPORT NOISE AND THE ADVERSE REACTIONS OF ADJACENT COMMUNITIES ARE ALREADY SERIOUS. ECONOMIC COMPARISONS OF NEW AIRCRAFT TYPES FOR DOMESTIC AND INTERNATIONAL TRANSPORT ARE MADE ON THE BASIS OF A THEORETICAL FARE, I.E., THE FARE THAT AN AIRLINE OPERATOR WOULD HAVE TO CHARGE TO EARN A GIVEN RATE OF RETURN ON HIS INVESTMENT. POSSIBLE SOLUTIONS INCLUDE ESTABLISHMENT OF REGIONAL AIR CENTERS AWAY FROM METROPOLITAN AREAS; VTOL VEHICLES FOR SHORT-HAUL INTERCITY, CITY-TO-AIRPORT, AND AIRPORT-TO-AIRPORT TRANSPORT (50-200 MILES); AIR BUSSES FOR MEDIUM-HAUL TRANSPORT (500-2000 MILES); THE SUBSONIC STRETCHED JET AND JUMBO JET FOR DOMESTIC LONG-HAUL TRANSPORT (2500 MILES). THE SUBSONICS ARE COMPETITIVE FOR INTERNATIONAL LONG-HAUL TRANSPORT UP TO 4000 MILES; THE JUMBO JET HAS A 6000-MILE FULL-LOAD RANGE. TECHNOLOGICAL ADVANCES INCLUDE THE SUPERCRITICAL WING; ECONOMICAL METHODS OF USING TITANIUM FOR LIGHTER, SAFER AIRFRAMES; AND IMPROVED SAFETY DEVICES. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 666 376 13/13 5/11
BOLT BERANEK AND NEWMAN INC LOS ANGELES CALIF

A STUDY--INSULATING HOUSES FROM AIRCRAFT NOISE. (U)

NOV 66 103P

UNCLASSIFIED REPORT
AVAILABILITY: HARD COPY AVAILABLE FROM SUPERINTENDENT OF DOCUMENTS, GPO, WASHINGTON, D. C. 20402. $0.55 AS HH1.31:19.
SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH FEDERAL HOUSING ADMINISTRATION, WASHINGTON, D. C.

DESCRIPTORS: (*URBAN AREAS, *AIRCRAFT NOISE), (*HOUSING(DWELLINGS), *ACOUSTIC INSULATION), WAVE PROPAGATION, REDUCTION, COSTS, INSTRUCTION MANUALS, ENGINE NOISE, CONSTRUCTION (U)

THE STUDY IS OFFERED AS A PRACTICAL USABLE GUIDE SETTING FORTH WAYS (WITH COSTS) TO INSULATE EXISTING HOUSES FROM AIRCRAFT NOISE. THIS GUIDE IS INTENDED FOR PROPERTY OWNERS WHO NOW FIND THEMSELVES LOCATED IN AREAS SUBJECTED TO BOTHERSOME AIRCRAFT NOISE. INCLUDED IN THIS GUIDE IS A DISCUSSION OF THE BASIC AIRCRAFT NOISES AND PRACTICAL MODIFICATIONS THAT CAN BE MADE TO A STRUCTURE TO REDUCE THE TRANSMISSION OF THE NOISE INTO THE DWELLING. CONSTRUCTION DETAILS WITH PRIORITIES AND ESTIMATED COSTS ARE GIVEN FOR THREE LEVELS OF NOISE INSULATION. THE PRACTICAL LIMITS OF NOISE INSULATION ARE SET FORTH. TO GAIN USEFUL BENEFITS FROM NOISE INSULATION, IT WILL USUALLY BE NECESSARY TO AIR CONDITION THE HOUSES YEAR ROUND. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 670 165 1/3 20/1 5/5
AERONAUTICAL SYSTEMS DIV WRIGHT-PATTERSON AFB OHIO

GUIDELINES FOR ESTABLISHING INTERIOR NOISE LEVEL CRITERIA FOR AIR FORCE AIRCRAFT, (U)

MAR 68 24P WAFFORD, JOHN H. ;
MONITOR: SEG TR-67-57

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIRCRAFT CABINS, *AIRCRAFT NOISE), STANDARDS, SPECIFICATIONS, HUMAN FACTORS ENGINEERING, CONTROL, INTENSITY, SPEECH, INTELLIGIBILITY, FATIGUE(PHYSIOLOGY), HEARING, TOLERANCES(PHYSIOLOGY), THRESHOLDS(PHYSIOLOGY), FIGHTER AIRCRAFT, TRAINING PLANES, TRANSPORT AIRCRAFT, SHORT TAKEOFF AIRCRAFT (U)

GUIDELINES ARE PRESENTED TO ASSIST THE ENGINEER IN DEVELOPING INTERIOR NOISE LEVEL CRITERIA FOR AIR FORCE PROCURED AIRCRAFT. THE SHORTCOMINGS OF AIR FORCE DOCUMENTS USED IN ESTABLISHING INTERIOR NOISE LEVEL REQUIREMENTS ARE POINTED OUT. SPEECH COMMUNICATION, ANNOYANCE AND FATIGUE, AND DAMAGE-RISK, AND THEIR RELATIONSHIP TO SPECIFIC NOISE LEVEL REQUIREMENTS, ARE DISCUSSED. BASED ON THESE NOISE ENVIRONMENTAL FACTORS AND AIR FORCE REQUIREMENTS, INTERIOR NOISE LEVEL CRITERIA ARE DEVELOPED FOR VARIOUS TYPES OF AIRCRAFT. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 671 188 6/16 6/19
NAVAL AEROSPACE MEDICAL INST PENSACOLA FLA

THE RELATIONSHIP OF THE NAVAL AVIATOR'S SPEECH DISCRIMINATION TEST TO THE PURE TONE AUDIOGRAM, (U)

APR 68 21P GREENE,JAMES W. ;
REPT. NO. NAMI-1037
PROJ: NAVMED-MF022.03.02-5021
TASK: MF022.03.02-5021.2

UNCLASSIFIED REPORT

DESCRIPTORS: (*AVIATION PERSONNEL, AUDIOMETRY), NAVAL AVIATION, SPEECH RECOGNITION, AIRCRAFT NOISE, STATISTICAL ANALYSIS, HEARING, THRESHOLDS(PHYSIOLOGY), AVIATION MEDICINE, SPEECH, INTELLIGIBILITY (U)

THE PURE TONE THRESHOLD AUDIOGRAM REQUIRED ANNUALLY FOR NAVAL AVIATORS PROVIDES LIMITED INFORMATION TOWARD DETERMINING THEIR ABILITY TO UNDERSTAND SPEECH IN THE AIRCRAFT. THE NAVAL AVIATOR'S SPEECH DISCRIMINATION TEST (NASDT) WAS DEVELOPED TO EVALUATE OBJECTIVELY THE ABILITY TO UNDERSTAND VERY LOUD SPEECH IN A BACKGROUND OF AIRCRAFT NOISE FOR THOSE AVIATORS WHOSE HEARING FAILED TO MEET THE STANDARDS. AN EARLIER STUDY HAD INDICATED THAT THERE WAS NO RELATIONSHIP BETWEEN THE RESULTS OF THE NASDT AND THE CONFIGURATION OF THE PURE TONE AUDIOGRAM; THEREFORE, TO FURTHER EXAMINE THIS FINDING, DATA FROM PURE TONE THRESHOLD TESTS AND THE NASDT WERE OBTAINED FOR OVER 500 MEN WITH DIFFERENT DEGREES OF FLIGHT EXPERIENCE. STATISTICAL ANALYSIS OF THE NASDT RESULTS SHOWED THAT THERE WAS GREAT CONSISTENCY IN SCORES MADE BY THE DIFFERENT GROUPS. NO PRACTICAL CORRELATIONS BETWEEN NASDT SCORES AND HEARING THRESHOLD LEVELS WERE FOUND. SINCE THE NASDT, THEREFORE, APPEARS TO PROVIDE A MORE REALISTIC EVALUATION OF HEARING IN AIRCRAFT NOISE, IT IS SUGGESTED THAT IT BE EMPLOYED AS A SUPPLEMENTARY TEST IN THE HEARING EVALUATIONS OF ALL AVIATORS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 673 346 1/3 20/1
AEROSPACE MEDICAL RESEARCH LABS WRIGHT-PATTERSON AFB OHIO

ACOUSTIC ENVIRONMENTS OF THE F-111A AIRCRAFT DURING GROUND RUNUP. (U)

DESCRIPTIVE NOTE: FINAL REPT. AUG 67-JAN 68,
MAY 68 60P COLE,JOHN N. ;ROSE,JUSTUS F. , JR;
REPT. NO. AMRL-TR-68-14
PROJ: AF-7231
TASK: 723104

UNCLASSIFIED REPORT

DESCRIPTORS: (*JET FIGHTERS, *ENGINE NOISE), SOUND, PRESSURE, MEASUREMENT, RANGE(DISTANCE), POWER SPECTRA, SPEECH, NOISE, INTERFERENCE, MAINTENANCE, PERSONNEL, STRESS(PHYSIOLOGY), PERFORMANCE(HUMAN) (U)
IDENTIFIERS: F-111A AIRCRAFT, F-111 AIRCRAFT, GRAPHS(CHARTS) (U)

SOUND PRESSURE LEVEL MEASUREMENTS WERE MADE ON AN F-111A AIRCRAFT AT 250-FOOT RADIAL DISTANCE WITH THREE DIFFERENT ENGINE POWER CONFIGURATIONS AT WRIGHT-PATTERSON AFB, OHIO. IN ADDITION, SOUND LEVEL MEASUREMENTS WERE MADE AT FOUR MAINTENANCE POSITIONS WHERE PERSONNEL WOULD TYPICALLY BE LOCATED DURING NORMAL GROUND OPERATIONS. THESE DATA WERE USED TO COMPUTE THE POWER SPECTRA, DIRECTIVITY INDICES, EQUAL SOUND PRESSURE LEVEL CONTOURS, EQUAL PERCEIVED NOISE LEVEL CONTOURS, AND EQUAL SPEECH INTERFERENCE LEVEL CONTOURS. THESE RESULTS ARE PRESENTED IN GRAPHICAL FORM AND CAN BE USED TO DETERMINE THE ACOUSTIC ENVIRONMENTS AT DISTANCES FROM 125 TO 6000 FEET FROM THE AIRCRAFT DURING GROUND OPERATION. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 673 682 20/1 1/3
STANFORD RESEARCH INST MENLO PARK CALIF SENSORY SCIENCES RESEARCH CENTER

COMPARISONS BETWEEN SUBJECTIVE RATINGS OF AIRCRAFT NOISE AND VARIOUS OBJECTIVE MEASURES. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
APR 68 80P HECKER,MICHAEL H. L. ;
KRYTER,KARL D. ;
CONTRACT: FA-67-WA-1696
MONITOR: FAA-NO 68-33

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIRCRAFT NOISE, MEASUREMENT), (*AUDITORY PERCEPTION, AIRCRAFT NOISE), ACCEPTABILITY, JET ENGINE NOISE, PSYCHOACOUSTICS, CORRELATION TECHNIQUES, PREDICTIONS, TABLES(DATA) (U)

VARIOUS ESTABLISHED AND PROPOSED OBJECTIVE METHODS OF MEASURING AIRCRAFT NOISE WERE EVALUATED WITH RESPECT TO THEIR ABILITY TO PREDICT SUBJECTIVE RATINGS OF THE ACCEPTABILITY OF NOISE PRODUCED BY PRESENT-DAY COMMERCIAL AIRCRAFT. RECORDED FLYOVERS OF SEVERAL TYPES OF AIRCRAFT DURING TAKEOFF AND LANDING OPERATIONS WERE SELECTED, AND OTHER FLYOVERS WERE ELECTRONICALLY SIMULATED. PAIRED-COMPARISON LISTENING TESTS WERE USED TO DETERMINE THE LEVEL AT WHICH EACH FLYOVER WAS CONSIDERED TO BE AS ACCEPTABLE AS A REFERENCE SOUND. OBJECTIVE MEASURES CORRESPONDING TO THIS LEVEL WERE COMPUTED FOR EACH FLYOVER. THE RELATIVE ACCURACY WITH WHICH THE OBJECTIVE MEASURES PREDICTED THE SUBJECTIVE RATINGS WAS EXPRESSED IN TERMS OF THE VARIANCE IN THE COMPUTED VALUES OF EACH OBJECTIVE MEASURE. THE SMALLEST VARIANCE WAS ASSOCIATED WITH A MEASURE THAT TAKES INTO ACCOUNT THE SPECTRAL PROPERTIES OF A GIVEN FLYOVER FOR ITS ENTIRE DURATION AND ALSO THE PRESENCE OF PURE TONES OR OTHER NARROW-BAND ENERGY CONCENTRATIONS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 673 987 20/1 5/10 1/3
WYLE LABS INC HUNTSVILLE ALA RESEARCH STAFF

SUBJECTIVE EVALUATION OF GENERAL AVIATION AIRCRAFT NOISE. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
APR 68 107P OLLERHEAD,J. B. ;
CONTRACT: FA-67-WA-1731
MONITOR: FAA-NO 68-35

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIRCRAFT NOISE, AUDITORY PERCEPTION), (*JET PLANE NOISE, AUDITORY PERCEPTION), GAS TURBINES, TURBOPROP ENGINES, TURBOJET ENGINES, SCALE, CORRELATION TECHNIQUES, SIMULATION, DOPPLER EFFECT, JET TRANSPORT PLANES, TEST METHODS, CIVIL AVIATION (U)
IDENTIFIERS: EVALUATION (U)

AN EXPERIMENT WAS CONDUCTED, IN A PROGRESSIVE WAVE FIELD, IN WHICH A GROUP OF SUBJECTS EVALUATED THE NOISINESS OF RECORDED GENERAL AVIATION AIRCRAFT SOUNDS IN COMPARISON TO JET TRANSPORT FLYOVER NOISE. THE AIRCRAFT STUDIED WERE PISTON ENGINED, TURBOPROP AND TURBOJET AIRCRAFT IN THE WEIGHT RANGE 2000 TO 13,000 LBS. TWENTY-EIGHT NOISE RATING SCALES WERE EVALUATED AND IT WAS FOUND THAT OF CURRENTLY USED SCALES, PERCEIVED NOISE LEVEL, CORRECTED FOR PURE TONE CONTENT, GAVE THE BEST CORRELATION WITH THE SUBJECTIVE RESULTS. FOR THE SIGNALS STUDIED, DURATION APPEARED TO HAVE LITTLE INFLUENCE ON THE SUBJECTIVE NOISINESS OF FLYOVER SOUNDS. BY COMPARING THE RESULTS FOR A NUMBER OF SIMULATED FLYOVER SOUNDS IT WAS CONCLUDED THAT AN EXPLANATION LIES IN THE INFLUENCE OF THE DOPPLER FREQUENCY SHIFT, WHICH TENDS TO CANCEL THE EFFECTS OF DURATION. A DOPPLER CORRECTION FOR CURRENT NOISE RATING METHODS IS PRESENTED WHICH GENERALLY IMPROVES THEIR CORRELATION WITH OBSERVED RESULTS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 674 184 6/17 5/5 5/9
ARMY AEROMEDICAL RESEARCH UNIT FORT RUCKER ALA

USER EVALUATIONS OF TWO AIRCREW PROTECTIVE HELMETS, (U)

AUG 68 37P BYNUM, JAMES A. I
REPT. NO. USAARU-69-1
PROJ: DA-3A0-2560-1A819
TASK: 3A0-2560-1A819-036

UNCLASSIFIED REPORT

DESCRIPTORS: (*FLIGHT CREWS, PROTECTIVE CLOTHING), (*HELMETS, PERFORMANCE(ENGINEERING)), HUMAN FACTORS ENGINEERING, JET PLANE NOISE, ATTENUATION, EXPERIMENTAL DESIGN, ANALYSIS OF VARIANCE, PROTECTION, DESIGN, WEIGHT, ACCEPTABILITY, DECISION MAKING, VOICE COMMUNICATIONS (U)
IDENTIFIERS: EVALUATION (U)

TWO AIRCREW PROTECTIVE HELMETS WERE EVALUATED BY 24 INSTRUCTOR PILOTS WHO WERE DIVIDED EQUALLY INTO GROUPS SUBJECTED TO THREE AMBIENT NOISE ENVIRONMENTS. PILOTS RATED THE ARMY APH-5 AND THE SPH-3X (EXPERIMENTAL) ON EIGHT CATEGORIES DESIGNED TO ASSESS RELATIVE COMFORT, ACCEPTABILITY, AND NOISE ATTENUATION. RATINGS WERE COMPARED, USING A SPLIT-PLOT FACTORIAL ANALYSIS OF VARIANCE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 676 230 20/1 1/3 5/10
FEDERAL AVIATION ADMINISTRATION WASHINGTON D C OFFICE OF NOISE ABATEMENT

AIRCRAFT NOISE EVALUATION. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
SEP 68 77P SPERRY,WILLIAM C. ;
REPT. NO. FAA-NO-68-34
PROJ: FAA-550-003-03H

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIRCRAFT NOISE, *AUDITORY PERCEPTION), STANDARDS, MATHEMATICAL PREDICTION, PSYCHOACOUSTICS, INTENSITY, TABLES(DATA) (U)
IDENTIFIERS: EVALUATION, GRAPHS(CHARTS) (U)

THE FEDERAL AVIATION ADMINISTRATION, IN RESPONSE TO PUBLIC LAW 90-411, HAS BEGUN THE RULEMAKING PROCESS LEADING TO THE CERTIFICATION OF AIRCRAFT FOR NOISE. THE BASIC ELEMENT IN THE REGULATION CRITERIA IS THE NOISE EVALUATION MEASURE DESIGNATED AS EFFECTIVE PERCEIVED NOISE LEVEL, EPNL, WHICH IS A SINGLE NUMBER EVALUATOR OF THE SUBJECTIVE EFFECTS OF AIRCRAFT NOISE ON HUMAN BEINGS. SIMPLY STATED, EPNL CONSISTS OF INSTANTANEOUS PERCEIVED NOISE LEVEL CORRECTED FOR TONES AND DURATION. THE HISTORY OF THE DEVELOPMENT OF EPNL IS PRESENTED AND A CRITICAL EVALUATION OF ITS VALIDITY IS MADE. THE COMPUTATIONAL PROCEDURES ARE DESCRIBED IN DETAIL INCLUDING BOTH INTEGRATION AND APPROXIMATE METHODS FOR CALCULATING DURATION CORRECTIONS. EXAMPLES ARE GIVEN IN THE APPENDICES. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 686 673 1/3 20/1
CIVIL AEROMEDICAL INST OKLAHOMA CITY OKLA

COCKPIT NOISE INTENSITY: FIFTEEN SINGLE-ENGINE LIGHT AIRCRAFT, (U)

SFP 68 9P TOBIAS,JERRY V. ;
MONITOR: FAA-AM 68-21

UNCLASSIFIED REPORT

DESCRIPTORS: (*COCKPITS, *AIRCRAFT NOISE), CIVIL AVIATION, HEARING, SAFETY, EAR PROTECTORS, INTENSITY, LEVEL FLIGHT, TEST METHODS, LOW ALTITUDE, HIGH ALTITUDE, ACOUSTICS (U)
IDENTIFIERS: AIRCRAFT, LIGHTWEIGHT, NOISE (U)

FIFTEEN OF THE MOST POPULAR SINGLE-ENGINE GENERAL-AVIATION LIGHT AIRCRAFT WERE TESTED FOR THE NOISE INTENSITY PRESENT DURING NORMAL CRUISING OPERATIONS AT 2000, AND 10,000 FEET MSL (MEAN SEA LEVEL). IN COMPARISON WITH CURRENTLY ACCEPTED DRC (DAMAGE-RISK CRITERION) CURVES, THE NOISE LEVELS FOUND EVEN IN THE QUIETEST PLANE TESTED COULD BE DAMAGING. HOWEVER, A WELL FITTED PAIR OF EARPLUGS SHOULD PROTECT AGAINST THE PHYSIOLOGICALLY DAMAGING NOISE INTENSITIES ENCOUNTERED IN THIS STUDY. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 686 736 1/3 20/1 6/17
AEROSPACE MEDICAL RESEARCH LABS WRIGHT-PATTERSON AFB OHIO

NOISE ENVIRONS AND HELMET PERFORMANCE FOR THE P-1127 V/STOL AIRCRAFT. (U)

DESCRIPTIVE NOTE: FINAL REPT. OCT 67-MAR 68,
DEC 68 29P SOMMER,HENRY C. ;ROSE, JUSTUS F. , JR.;KNOBLACH,WILLIAM C. ;
REPT. NO. AMRL-TR-68-70
PROJ: AF-7231
TASK: 723103, 723104

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIRCRAFT NOISE, MEASUREMENT), (*HELMETS, ACOUSTIC INSULATION), (*VERTICAL TAKEOFF AIRCRAFT, AIRCRAFT NOISE), COCKPITS, ENVIRONMENT, EFFECTIVENESS, CORRELATION TECHNIQUES, CAPTIVE TESTS, ENGINE NOISE, TEST FACILITIES, TEST METHODS, AUDIOMETRY (U)
IDENTIFIERS: NOISE, V-6 AIRCRAFT, XV-6A AIRCRAFT (U)

THE PURPOSE OF THE EVALUATION WAS (1) TO MEASURE THE ACOUSTIC NOISE ENVIRONMENT IN THE COCKPIT OF THE UNITED KINGDOM HAWKER SIDDELEY P-1127 V/STOL AIRCRAFT THAT WOULD SERVE AS AN ACOUSTIC GUIDELINE FOR COCKPIT NOISE LEVELS OF AIRCRAFT BEING CONTEMPLATED OR UNDER CONSTRUCTION, AND (2) TO DETERMINE THE ACOUSTIC ATTENUATION OF VARIOUS AIR FORCE FLIGHT HELMETS IN THE INVENTORY OR BEING CONTEMPLATED FOR AIR FORCE INVENTORY ITEMS. COCKPIT SOUND PRESSURE LEVELS IN THE P-1127 V/STOL AIRCRAFT AT VARIOUS ENGINE RPM SETTINGS WERE MEASURED. THE COCKPIT NOISE ENVIRONMENT AT MAXIMUM ENGINE RPM WAS REPRODUCED IN THE LABORATORY AND USED TO OBTAIN OBJECTIVE ATTENUATION DATA FOR THREE AIR FORCE FLIGHT HELMET/LINER CONFIGURATIONS. MEASUREMENT OF REAL-EAR ATTENUATION AT THRESHOLD WERE ALSO ACCOMPLISHED ON THE HELMET/LINER CONFIGURATIONS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 688 111 1/3 20/1 6/19
CIVIL AEROMEDICAL INST OKLAHOMA CITY OKLA

COCKPIT NOISE INTENSITY: ELEVEN TWIN-ENGINE LIGHT AIRCRAFT, (U)

OCT 68 8P TOBIAS,JERRY V. ;
MONITOR: FAA-AM 68-25

UNCLASSIFIED REPORT

DESCRIPTORS: (*COCKPITS, *AIRCRAFT NOISE), CIVIL AVIATION, HEARING, AVIATION MEDICINE, EAR PROTECTORS, AVIATION SAFETY (U)
IDENTIFIERS: *GENERAL AVIATION AIRCRAFT, *AIRCRAFT, *LIGHTWEIGHT (U)

ELEVEN OF THE MOST POPULAR TWIN-ENGINE GENERAL-AVIATION LIGHT AIRCRAFT WERE TESTED FOR THE NOISE INTENSITY PRESENT DURING NORMAL CRUISING OPERATIONS AT 2000, 6000, AND 10000 FEET MSL (MEAN SEA LEVEL). ALTHOUGH GENERALLY QUIETER THAN SINGLE-ENGINE PLANES, THESE AIRCRAFT, IN COMPARISON WITH CURRENTLY ACCEPTED DRC (DAMAGE-RISK CRITERION) CURVES, HAVE NOISE LEVELS (EVEN IN THE QUIETEST PLANE TESTED) THAT COULD BE DAMAGING. HOWEVER, A WELL FITTED PAIR OF EARPLUGS SHOULD PROTECT AGAINST THE PHYSIOLOGICALLY DAMAGING NOISE INTENSITIES ENCOUNTERED IN THE STUDY. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 688 478 1/5 20/1
RAND CORP SANTA MONICA CALIF

SOME PROJECTED EFFECTS OF JET NOISE ON RESIDENTIAL PROPERTY NEAR LOS ANGELES INTERNATIONAL AIRPORT BY 1970. (U)

DESCRIPTIVE NOTE: THESIS,
APR 69 167P MCCLURE,PAUL T. ;
REPT. NO. P-4083

UNCLASSIFIED REPORT

DESCRIPTORS: (*JET PLANE NOISE, *URBAN AREAS), (*AIRPORTS, URBAN AREAS), SOUND, POWER, FREQUENCY, PERCEPTION, HEARING, MEASUREMENT, COUNTERMEASURES, AIRCRAFT, DESIGN, SUPPRESSORS, ACOUSTIC INSULATION, COSTS, TERMINAL FLIGHT FACILITIES, AIRCRAFT LANDINGS, REVIEWS, THESES (U)
IDENTIFIERS: LAND USE, *LOS ANGELES INTERNATIONAL AIRPORT, ZONING (U)

CONTENTS: THE PROBLEM AND DEFINITION OF TERMS USED; REVIEW OF THE LITERATURE; NOISE MEASUREMENT; PROPERTY MADE UNINHABITABLE BY JET NOISE; CHANGING USE OF PROPERTY MADE UNINHABITABLE BY JET NOISE; PAYING THE NOISE COST - REVENUE SOURCES; SUMMARY AND CONCLUSION. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOM09

AD- 689 086 6/19
EIDGENOESSISCHE TECHNISCHE HOCHSCHULE ZURICH (SWITZERLAND)
INSTITUT FUER HYGIENE UND ARBEITSPHYSIOLOGIE

EXPERIMENTELLE UNTERSUCHUNGEN UEBER DIE STOERWIRKUNG VON FLUGZEUGLAERM (EXPERIMENTAL INVESTIGATIONS OF DISCOMFORT PRODUCED BY AIRPLANE NOISES),
(U)

JUL 66 12P GRANDJEAN,ETIENNE ;PERRET, ETIENNE ;LAUBER,ANSELM ;

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN INTERNATIONALE ZEITSCHRIFT FUER ANGEWANDTE PHYSIOLOGIE EINSCHLIESSLICH ARBEITSPHYSIOLOGIE (WEST GERMANY) V23 P191-202 1966. NO COPIES FURNISHED.
SUPPLEMENTARY NOTE: TEXT IN GERMAN; SUMMARY IN ENGLISH, GERMAN, AND FRENCH.

DESCRIPTORS: (*AIRCRAFT NOISE, STRESS(PHYSIOLOGY)), (*AUDIOMETRY, AIRCRAFT NOISE), HUMANS, STRESS(PSYCHOLOGY), THRESHOLDS(PHYSIOLOGY), HEARING, SWITZERLAND, TOLERANCES(PHYSIOLOGY) (U)

THE DISCOMFORT BROUGHT TO STUDENTS BY AIRPLANE NOISES RECORDED ON MAGNETIC TAPE WAS STUDIED DURING CLASSES. DURING 18 PERIODS, STUDENTS HEARING ALTOGETHER 128 AIRPLANE NOISES, GAVE AFTER EACH NOISE A SCORE BETWEEN 1 AND 6 ACCORDING TO THEIR SUBJECTIVE EVALUATION OF THE DISCOMFORT THEY EXPERIENCED. THE VARIABLES IN THE AIRPLANE NOISES WHICH WERE USED GAVE THE FOLLOWING RESULTS: (1) THE DISCOMFORT INCREASES ALMOST LINEARLY WITH THE AUDITORY LEVEL EXPRESSED IN DB(A) OR IN PN DB; THIS IS TRUE OF THE TWO AUDITORY SPECTRA STUDIED (DC-8 AND CARAVELLE). (2) THE DISCOMFORT INCREASES WITH THE DURATION OF NOISES. (3) FOR IDENTICAL NOISE LEVELS, EXPRESSED IN DB(A), THE ACOUSTICAL SPECTRUM WITH HIGH PITCH PREDOMINANCE (CARAVELLE'S LANDING) LED TO A STRONGER DISCOMFORT THAN THE SPECTRUM WITH LOW PITCH PREDOMINANCE (TAKING-OFF OF THE DC-8). (4) THE DISCOMFORT WAS THE SAME DURING PERIODS WITH 5 OR 6 AIRPLANE NOISES AS DURING PERIODS WITH 10 OR 11. (5) THE REPETITION OF THE SAME NOISES LED TO A LOW BUT SIGNIFICANT DECREASE IN THE DISCOMFORT EXPERIENCED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOM09

AD- 689 107 1/5 1/2
FEDERAL AVIATION ADMINISTRATION WASHINGTON D C

A SUGGESTED ACTION PROGRAM FOR THE RELIEF OF AIRFIELD CONGESTION AT SELECTED AIRPORTS, (U)

APR 69 213P MILLION,L. N. ;COPELAND,J. M. ;HORNSBY,J. T. ;KEEPERS,W. C. ;

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIRPORTS, *AIR TRAFFIC), TERMINAL FLIGHT FACILITIES, RUNWAYS, AIRPORT CONTROL TOWERS, AIR TRAFFIC CONTROL SYSTEMS, AIR TRAFFIC CONTROL TERMINAL AREAS, NAVIGATIONAL AIDS, CONSTRUCTION, COSTS, COST EFFECTIVENESS, AIRCRAFT NOISE, SITE SELECTION, AIR TRANSPORTATION (U)
IDENTIFIERS: AIRPORT CONGESTION, TAXIWAYS (U)

THIS REPORT SEPARATELY IDENTIFIES AND ANALYZES THE POSSIBLE IMPROVEMENTS LEADING TO REDUCED AIRCRAFT DELAYS AT EIGHTEEN OF THE NATION'S HIGHEST DENSITY AIRPORTS. DISCUSSION IS PRESENTED ON THE CAUSES CONTRIBUTING TO AERONAUTICAL CONGESTION AND ON THE CURRENT OPERATIONAL STATUS OF EACH AIRPORT. THE REPORT IS CONCERNED PRIMARILY WITH PHYSICAL CONSTRUCTION PROJECTS WHICH WILL ENHANCE THE PARTICULAR AIRPORT'S AIRFIELD CAPACITY SUCH AS HIGH-SPEED EXIT TAXIWAYS, PARALLEL RUNWAYS, AND NAVIGATIONAL AIDS. IT ALSO EXAMINES CERTAIN PROCEDURAL IMPROVEMENTS SUCH AS INTERSECTION TAKEOFFS AND PART-TIME USE OF TAXIWAYS AS VFR RUNWAYS. EACH AIRPORT IMPROVEMENT, WHERE POSSIBLE, HAS BEEN EVALUATED FROM A COST VS. DELAY BENEFIT SAVINGS VIEWPOINT. THE RESULT IS A SERIES OF RECOMMENDED ACTIONS FOR EACH SURVEYED AIRPORT WITH EMPHASIS GIVEN TO THOSE ITEMS WHICH CAN BE CONSTRUCTED OR IMPLEMENTED AND PLACED IN OPERATION WITHIN ONE TO FOUR YEARS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 690 827 20/1 5/3
RAND CORP SANTA MONICA CALIF

INDICATORS OF THE EFFECT OF JET NOISE ON THE VALUF OF RFAL ESTATE, (U)

JUL 69 38P MCCLURF, PAUL T. ;
REPT. NO. P-4117

UNCLASSIFIED REPORT

DESCRIPTORS: (*JET PLANE NOISE, SOCIOMETRICS), ECONOMICS, TERRAIN, ATTITUDES(PSYCHOLOGY), MONEY, STATISTICAL ANALYSIS, ACOUSTIC INSULATION, COSTS, LAW, AIRPORTS, FLIGHT PATHS (U)
IDENTIFIERS: DEPRECIATION, LITIGATION, *NOISE POLLUTION (U)

AIRPORT NEIGHBORS TYPICALLY CONTEND THAT THEIR PROPERTY SHOULD ENJOY AIRPORT-ACCELERATED APPRECIATION IN VALUE BUT NOT SUFFER COUNTERBALANCING EFFECTS FROM JET NOISE. THE PAPER DISCUSSES THE EFFECT OF JET NOISE ON PROPERTY VALUE AS INDICATED BY (1) MARKET VALUE CHANGES, (2) INSULATION COSTS, (3) EASEMENT COSTS, AND (4) LITIGATION. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOM09

AD- 691 053 6/19 6/10 20/1 1/3
SCHOOL OF AEROSPACE MEDICINE BROOKS AFB TEX

STANDARDIZATION OF AVIATION NOISE STRESS, (U)

69 8P BORSCHEVSKII,I. YA. ;
KUZNETSOV,V. S. ;LAPAEV,E. V. ;
REPT. NO. SAM-TT-R-1001-0169

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF VOENNO-MEDITSINSKII ZHURNAL (USSR) N10 P80-82 OCT 67, BY DAVID L. WOOD.

DESCRIPTORS: (*JET ENGINE NOISE, *STRESS(PHYSIOLOGY)), (*TOLERANCES(PHYSIOLOGY), STANDARDIZATION), HEARING, THRESHOLDS(PHYSIOLOGY), JET PLANE NOISE, AUDITORY PERCEPTION, INTENSITY, USSR (U)
IDENTIFIERS: NOISE POLLUTION, TRANSLATIONS (U)

THE STUDIES PERFORMED CONCERNING THE CUMULATIVE EFFECTS OF NOISE LEAD TO THE FOLLOWING RECOMMENDED MAXIMUM TOLERABLE LEVELS OF NOISE RELATIVE TO INTENSITY AND DURATION WITH DAILY EXPOSURE: UP TO 100 DECIBELS--SIX HOURS, UP TO 110 DECIBLES--ONE HOUR, 115 DECIBELS--NOT MORE THAN 30 MINUTES. THESE CRITERIA BEAR REFERENCE TO INDIVIDUALS EXPOSED TO NOISE WITHOUT THE USE OF INDIVIDUAL PROTECTIVE DEVICES. WHEN THE LATTER ARE USED, THE ALLOWABLE LEVELS OF NOISE MAY BE CORRESPONDINGLY INCREASED BY TEN DECIBELS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 695 507 20/1 1/5
BOLT BERANEK AND NEWMAN INC VAN NUYS CALIF

NOISE EXPOSURE FORECAST CONTOUR INTERPRETATIONS OF AIRCRAFT NOISE TRADEOFF STUDIES. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
MAY 69 46P BISHOP,DWIGHT E. ;HORONJEFF, RICHARD D. ;
REPT. NO. BRN-1714
CONTRACT: FA-68-WA-1900
MONITOR: FAA-NO 69-2

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIRPORTS, JET PLANE NOISE), (*JET PLANE NOISE, REDUCTION), AREA COVERAGE, ENGINE NOISE, TAKEOFF, TURBOFAN ENGINES, ENGINE NACELLES, TEST METHODS, STATISTICAL ANALYSIS (U)
IDENTIFIERS: LOS ANGELES INTERNATIONAL AIRPORT, O'HARE INTERNATIONAL AIRPORT, TRADEOFFS (U)

THE EFFECTIVENESS OF CHANGES IN AIRCRAFT OPERATING PROCEDURES AND AIRCRAFT HARDWARE REGARDING THE REDUCTION NOISE NEAR AIRPORTS WERE RATED BY DETERMINING THE CHANGES IN LAND AREAS FALLING WITHIN THE NOISE EXPOSURE FORECAST CONTOURS. SETS OF NEF CONTOURS WERE CONSTRUCTED FOR TWO DIFFERENT AIRCRAFT TYPES OPERATING FROM A SINGLE RUNWAY AIRPORT; THE NUMBER OF OPERATIONS PER DAY WAS VARIED FROM 200 TO 1000. THE CHANGES INCLUDED POWER CUTBACKS AFTER TAKEOFF, TWO SEGMENT APPROACHES AND RETROFIT OF FOUR-ENGINE TURBOFAN AIRCRAFT WITH ACOUSTICALLY-LINED NACELLES OR WITH A 'QUIET ENGINE'. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 697 377 6/17 2/5
SCHOOL OF AEROSPACE MEDICINE BROOKS AFB TEX

EVALUATION OF CANINE EAR DEFENDERS. (U)

DESCRIPTIVE NOTE: FINAL REPT. MAY 68-MAR 69,
AUG 69 15P BEULKE,DONALD L. ;SIMMONDS,
RICHARD C. ;
REPT. NO. SAM-TR-69-44
PROJ: AF-7753
TASK: 775311

UNCLASSIFIED REPORT

DESCRIPTORS: (*EAR PROTECTORS, EFFECTIVENESS), (*DOGS, EAR PROTECTORS), FEASIBILITY STUDIES, HEARING, JET PLANE NOISE (U)

CONCERN FOR HEARING IMPAIRMENT OF AIR FORCE PERSONNEL AS A RESULT OF TURBOJET NOISE LED AIR FORCE VETERINARIANS TO SPECULATE THAT SIMILAR IMPAIRMENT MAY OCCUR AMONG AIR FORCE SENTRY DOGS. IT WAS THE PURPOSE OF THIS PROJECT TO DEVELOP AND TEST CANINE EAR DEFENDERS AND TO EVALUATE THE FEASIBILITY OF USING THEM IN AIR FORCE DOGS. THREE BASIC TYPES OF EAR DEFENDERS WERE DEVELOPED: UNIVERSAL EARPLUGS, MOLDED EARPLUGS, AND EXTERNAL EARMUFFS. EIGHTEEN DOGS WERE USED TO EVALUATE THE EAR DEFENDERS UNDER CONDITIONS RANGING FROM ACOUSTICAL CHAMBER TO FLIGHT-LINE RUNUP OF OPERATIONAL AIRCRAFT. EXHAUST NOISE LEVELS, AS RECORDED, RANGED TO 128 DB AT ALL FREQUENCIES (20 HZ TO 20 KHZ) AND INTAKE NOISE LEVELS RANGED TO 115 DB AT ALL FREQUENCIES. NONE OF THE DOGS SHOWED ANY APPREHENSION TO, OR DISCOMFORT FROM, THE NOISE WITHOUT EARPLUGS, ALTHOUGH ONE DOG GAVE EVIDENCE OF SOMATIC DAMAGE FROM THE 128 DB NOISE LEVEL. IT WAS, THEREFORE, IMPOSSIBLE TO ESTABLISH AN END POINT FOR TESTING THE PROTECTIVE DEVICES. EARPLUGS WERE REJECTED AS A MEANS OF PROTECTION BECAUSE ONLY 1 OF THE 18 DOGS WOULD TOLERATE THEM. EARMUFFS WERE ALSO REJECTED BECAUSE THE POSITION OF THE CANINE EARS PRECLUDED ADEQUATE APPLICATION OF THE MUFFS. RECOMMENDATION WAS MADE TO ROTATE AND SELECTIVELY STATION DOGS FOUND APPREHENSIVE OF NOISE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 698 398 5/4 20/1 1/3
SANTA CLARA UNIV CALIF

THE ROAR, THE WHINE, THE BOOM AND THE LAW: SOME LEGAL CONCERNS ABOUT THE SST, (U)

69 40P HUARD,LEO A. ;

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN SANTA CLARA LAWYER, V9 N2 P189-226 1969.
SUPPLEMENTARY NOTE: SPONSORED BY NATIONAL AERONAUTICS AND SPACE ADMINISTRATION, WASHINGTON. D. C.

DESCRIPTORS: (*LAW, *SONIC BOOM), (*JET TRANSPORT PLANES, *COMMERCIAL PLANES), (*SUPERSONIC AIRCRAFT, LAW), JET PLANE NOISE, JET ENGINE NOISE, AIRPORTS, AIRCRAFT INDUSTRY, REACTION(PSYCHOLOGY) (U)
IDENTIFIERS: NOISE POLLUTION, *SUPERSONIC TRANSPORTS (U)

THE INQUIRY SHOWS THAT SUPERSONIC AIRPLANES MAY BRING ABOUT A CHANGE IN THE QUANTITY OF AIRPORT NOISE, BUT THEY ARE NOT LIKELY TO AFFECT THE QUALITY OF THAT NOISE. IT SEEMS UNLIKELY THAT THE SSTS WILL TRIGGER RADICAL REFORMS IN THE LEGAL RULES APPLICABLE TO AIRPORT NOISE, BECAUSE THEY SIMPLY WILL NOT MAKE A RADICAL PHYSICAL CHANGE IN SUCH NOISE. THE AIRPORT NOISE PROBLEM CRIES OUT FOR A CURE WITHOUT THE SST, AND THE ADVENT OF THAT TYPE OF AIRCRAFT WILL NOT IMPROVE THE SITUATION, BUT IT WILL NOT MAKE IT MUCH WORSE EITHER. REFORM OF 'AIRPORT' LAW WILL NOT FIND ITS RAISON D'ETRE IN THE SST AND REFORMERS MUST SEEK THEIR IMPETUS ELSEWHERE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 699 593 20/1 1/3 6/19
AEROSPACE MEDICAL RESEARCH LAB WRIGHT-PATTERSON AFB OHIO

MEASUREMENT AND ANALYSIS OF BIOACOUSTIC ENVIRONMENTS ABOARD AC-119G AND AC-130A GUNSHIPS. (U)

DESCRIPTIVE NOTE: FINAL REPT. SEP-NOV 68,
SEP 69 40P ROSE,JUSTUS F. , JR;
REPT. NO. AMRL-TR-68-176
PROJ: AF-7231
TASK: 723104

UNCLASSIFIED REPORT

DESCRIPTORS: (*TRANSPORT AIRCRAFT, AIRCRAFT NOISE), (*HEARING, PROTECTION), (*AIRCRAFT NOISE, MEASUREMENT), TAXIING, TAKEOFF, CLIMBING, LEVEL FLIGHT, AIRCRAFT GU(U)
IDENTIFIERS: AC-119G AIRCRAFT, AC-130A AIRCRAFT, AIRCRAFT, CONTRACT END ITEM DETAIL SPECIFICATION, C-130 AIRCRAFT, C-119 AIRCRAFT, GUNSHIPS (U)

ACOUSTIC NOISE MEASUREMENTS WERE MADE AT CREWMEMBER LOCATIONS ON BOARD AN AC-119G AND AC-130A GUNSHIP. MEASUREMENTS WERE MADE DURING TAXI, TAKEOFF, CLIMB, AND CRUISE POWER SETTINGS. IN ADDITION, MEASUREMENTS WERE TAKEN DURING FIRING OF THE FOUR 7.62 MM MINIGUNS ON THE AC-119G AND THE FOUR 7.62 MM MINIGUNS AND FOUR 20MM VULCANS ON THE AC-130A. MEASUREMENTS WERE AT TYPICAL CREWMEMBER LOCATIONS THROUGHOUT EACH AIRCRAFT DURING VARIOUS WEAPON CONBINATION FIRING CONFIGURATIONS. THE DATA ARE PRESENTED IN DATA ZONES AND EACH ZONE IS SHOWN ATTENUATED BY EACH OF FOUR IN-SERVICE EAR PROTECTION DEVICES. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 699 915 20/1 1/2
DEPARTMENT OF TRANSPORTATION WASHINGTON D C LIBRARY SERVICES DIV

AIRCRAFT NOISE AND SONIC BOOM. SELECTED REFERENCES. (U)

DEC 69 46P
REPT. NO. BIBLIOGRAPHIC LIST-2

UNCLASSIFIED REPORT

DESCRIPTORS: (*SONIC BOOM, *BIBLIOGRAPHIES), (*AIRCRAFT NOISE, BIBLIOGRAPHIES), MEASUREMENT, CONTROL, REDUCTION, STRUCTURES, RESPONSE, REACTION(PSYCHOLOGY), AIRPLANE ENGINE NOISE, LAW (U)
IDENTIFIERS: *NOISE POLLUTION (U)

CONTENTS: BIBLIOGRAPHIES; AIRCRAFT NOISE (GENERAL, MEASUREMENT, CONTROL, HUMAN RESPONSE); SONIC BOOM (GENERAL, GENERATION AND PROPAGATION, REDUCTION, HUMAN RESPONSE, STRUCTURAL RESPONSE, MISCELLANEOUS EFFECTS); LEGAL ASPECTS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 702 101 20/1 1/3
SCHOOL OF AEROSPACE MEDICINE BROOKS AFB TEX

NOISE GENERATED BY SECONDARY AND AUXILIARY AIRCRAFT SYSTEMS. (U)

DESCRIPTIVE NOTE: FINAL REPT. 1 NOV 67-1 NOV 68,
DEC 69 27P GASAWAY,DONALD C. ;
REPT. NO. SAM-TR-69-83
PROJ: AF-7755
TASK: 775508

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIRCRAFT NOISE, REVIEWS), GEAR NOISE, TRANSMISSIONS(MECHANICS), AIRCRAFT EQUIPMENT, AIR CONDITIONING EQUIPMENT, AUXILIARY POWER PLANTS, AERODYNAMIC NOISE, AEROELASTICITY (U)

A VARIETY OF NOISE-GENERATING MECHANISMS CONTRIBUTE TO THE OVERALL NOISE ENVIRONMENT ENCOUNTERED WITHIN FIXED- AND ROTARY-WING AIRCRAFT. THE REPORT CONTAINS DESCRIPTIONS AND ILLUSTRATIONS OF SECONDARY AND AUXILIARY SYSTEMS FOUND WITHIN AIRCRAFT WHICH CONTRIBUTE TO THE COMPOSITE NOISE. TYPES OF NOISE-GENERATING MECHANISMS INCLUDE: (1) TRANSMISSION, GEAR-REDUCTION, AND SHAFT DISTRIBUTION SYSTEMS; (2) AIR-CONDITIONING AND PRESSURIZATION SYSTEMS; (3) DEFROSTING SYSTEMS; (4) AIR-DISTRIBUTION DUCTS AND VENTS, AND AIR- CIRCULATING AND BLOWER UNITS; (5) GROUND AND AIRBORNE AUXILIARY POWER UNITS AND SYSTEMS; AND (6) AERODYNAMIC AND AEROELASTIC DISTURBANCES, INCLUDING DEVICES SUCH AS AIR BRAKES AND LANDING GEAR. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 702 422 20/1 6/19 1/3
SCHOOL OF AEROSPACE MEDICINE BROOKS AFB TEX

NOISE ENCOUNTERED IN ROTARY-WING AIRCRAFT. (U)

DESCRIPTIVE NOTE: FINAL REPT. FEB 62-APR 69,
DEC 69 33P GASAWAY,DONALD C. ;
REPT. NO. SAM-TR-69-87
PROJ: AF-7755
TASK: 775508

UNCLASSIFIED REPORT

DESCRIPTORS: (*HELICOPTERS, *AIRCRAFT NOISE), HELICOPTER ROTORS, POWER SUPPLIES, NOISE GENERATORS, HEARING (U)

THE ACOUSTIC ENVIRONMENT WITHIN ROTARY-WING AIRCRAFT CONSISTS OF A MIXTURE OF NOISES. THE REPORT IDENTIFIES, DESCRIBES, AND ILLUSTRATES THE PRIMARY AND SECONDARY NOISE-PRODUCING MECHANISMS ASSOCIATED WITH HELICOPTER OPERATION. THE NOISE SOURCES INCLUDE MAIN ROTORS, ANTITORQUE ROTORS, MAIN AND SECONDARY TRANSMISSION AND GEAR-SHAFT DISTRIBUTION SYSTEMS, AND AUXILIARY POWER UNITS. IN ADDITION TO DESCRIBING SPECIFIC NOISE GENERATORS, THE REPORT PRESENTS COMPOSITE NOISE ENVELOPES ILLUSTRATING TYPICAL NOISE ENVIRONS OF ROTARY-WING VEHICLES HAVING DIFFERENT CONFIGURATIONS OF ROTOR - TO - POWER PLANT MATINGS. ALTERATIONS IN INTERNAL NOISE WHICH OCCUR DURING CONDITIONS OF HOVER AND FORWARD FLIGHT ARE DESCRIBED AND AEROMEDICAL FACTORS SUCH AS SPEECH INTERFERENCE AND POTENTIAL AUDITORY RISK ARE IDENTIFIED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 705 964 20/1 1/3 6/19
SCHOOL OF AEROSPACE MEDICINE BROOKS AFB TEX

COCKPIT NOISE EXPOSURES ASSOCIATED WITH THE OPERATION OF FIXED-AND ROTARY-WING AIRCRAFT. (U)

DESCRIPTIVE NOTE: FINAL REPT. JUL 66-JUL 69,
APR 70 21P GASAWAY,DONALD C. ;
REPT. NO. SAM-TR-70-21
PROJ: AF-7755
TASK: 775508

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIRCRAFT NOISE, *EXPOSURE(PHYSIOLOGY)), (*COCKPITS, *AIRPLANE ENGINE NOISE), LEVEL FLIGHT, FLIGHT CREWS, FREQUENCY (U)
IDENTIFIERS: ROTARY WING AIRCRAFT (U)

NOISE LEVELS MEASURED WITHIN THE COCKPITS OF 126 FIXED- AND ROTARY-WING AIRCRAFT WERE TABULATED AND ARRANGED INTO STEREOTYPED SETS OF EXPOSURE ENVELOPES. THE NOISE DATA FROM WHICH THESE ENVELOPES WERE DERIVED REPRESENT 'TYPICAL' UNPROTECTED EXPOSURES ENCOUNTERED WITHIN 12 DIFFERENT CATEGORIES OF FIXED- AND ROTARY-WING AIRCRAFT DURING CONDITIONS OF 'NORMAL CRUISE.' EXTREME OR UNIQUE NOISE EXPOSURES WERE DELETED FROM THE STUDY. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 708 430 20/1 21/5
SCHOOL OF AEROSPACE MEDICINE BROOKS AFB TEX

NOISE ENVIRONMENTS WITHIN MULTIPLACE FIXED-WING AIRCRAFT. (U)

DESCRIPTIVE NOTE: FINAL REPT. JUL 65-DEC 69,
MAY 70 22P GASAWAY,DONALD C. ;
REPT. NO. SAM-TR-70-26
PROJ: AF-7755
TASK: 775508

UNCLASSIFIED REPORT

DESCRIPTORS: (*HEARING, PROTECTION), (*AIRPLANE ENGINE NOISE, STATISTICAL ANALYSIS), TURBOPROP ENGINES, TURBOJET ENGINES, AIR-BREATHING ENGINESUNCONVENTIONAL), WINGS, COCKPITS, LEVEL FLIGHT, SPEECH RECOGNITION (U)

NOISE ENVIRONMENTS WITHIN VARIOUS MULTIPLACE FIXED-WING AIRCRAFT DEMONSTRATE DIFFERENCES RELATED TO THE PROXIMITY OF THE OCCUPANT TO PRIMARY AND SECONDARY NOISE-GENERATING MECHANISMS. THE REPORT DEFINES ACOUSTIC ENVIRONMENTS SAMPLED AT DIFFERENT LOCATIONS WITHIN EIGHT GROUPS OF FIXED-WING AIRCRAFT DURING CONDITIONS OF NORMAL CRUISE. A TOTAL OF 51 AIRCRAFT, REPRESENTATIVE OF VEHICLES POWERED BY RECIPROCATING, TURBOPROPELLER, AND TURBOJET OR TURBOFAN ENGINES, PROVIDED THE DATA FROM WHICH 28 NOISE ENVELOPES WERE PLOTTED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOM09

AD- 708 816 20/1
WYLE LABS HUNTSVILLE ALA

THE NOISINESS OF DIFFUSE SOUND FIELDS AT HIGH INTENSITIES. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
AUG 69 103P OLLERHEAD,J. B. ;
REPT. NO. WR-69-17
CONTRACT: FA-68-WA-1971
MONITOR: FAA 70-3

UNCLASSIFIED REPORT

DESCRIPTORS: (*PSYCHOPHYSICS, *AIRCRAFT NOISE), (*NOISE, MEASUREMENT), STRESS(PHYSIOLOGY), CIVIL AVIATION, AUDITORY PERCEPTION, THRESHOLDS(PHYSIOLOGY), FREQUENCY, INTENSITY, NOISE GENERATORS, TEST FACILITIES, MATHEMATICAL MODELS, DISTORTION, TEST METHODS (U)
IDENTIFIERS: NOISE POLLUTION, REVERBERATION CHAMBERS, SOUND PRESSURE (U)

AN EXPERIMENTAL STUDY WAS CONDUCTED TO ESTABLISH THE RELATIONSHIPS BETWEEN THE SUBJECTIVE NOISINESS, FREQUENCY AND SOUND PRESSURE LEVEL OF RANDOM NOISE IN A DIFFUSE ACOUSTIC FIELD. THE EXPERIMENTS WERE PERFORMED IN A FABRIC ENCLOSURE INSTALLED WITHIN A 100,000 CUBIC FOOT REVERBERANT CHAMBER. TWENTY-FOUR SUBJECTS TOOK PART. THE GROWTH OF NOISINESS WITH SOUND PRESSURE LEVEL OF AN OCTAVE BAND OF NOISE CENTERED AT 1000 HZ WAS DETERMINED. THE VARIATION OF NOISINESS WITH FREQUENCY WAS MEASURED AT FOUR PERCEIVED NOISE LEVELS BETWEEN 78 AND 104 PNDB. FOR COMPARISON PURPOSES, ONE EQUAL NOISINESS CONTOUR WAS ALSO DETERMINED FOR FREE FIELD LISTENING CONDITIONS IN A PROGRESSIVE WAVE CHAMBER. THE RESULTS INDICATED THAT CURRENTLY USED NOISINESS GROWTH FUNCTIONS ARE ADEQUATE BUT THAT THE EQUAL NOISINESS CONTOURS MAY NEED SOME MODIFICATION AT LOW FREQUENCIES. ALSO THE CONTOUR SHAPES VARY AS SOUND PRESSURE LEVEL INCREASES INDICATING RELATIVELY GREATER NOISE SENSITIVITY AT BOTH HIGH AND LOW FREQUENCIES. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 710 525 20/1 1/2 1/5
BOLT BERANEK AND NEWMAN INC VAN NUYS CALIF

NOISE EXPOSURE FORECAST CONTOURS FOR AIRCRAFT NOISE TRADEOFF STUDIES AT THREE MAJOR AIRPORTS. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUL 70 62P BISHOP,DWIGHT E. ;HORONJEFF, RICHARD D. ;
REPT. NO. BRN-1858
CONTRACT: FA-68-WA-1900
MONITOR: FAA-NO 70-7

UNCLASSIFIED REPORT

DESCRIPTORS: (*JET PLANE NOISE, CONTROL), (*AIRPORTS, JET PLANE NOISE), TAKEOFF, APPROACH, ENGINE NACELLES, STATISTICAL ANALYSIS (U)
IDENTIFIERS: LOS ANGELES INTERNATIONAL AIRPORT, O'HARE INTERNATIONAL AIRPORT, JOHN F. KENNEDY INTERNATIONAL AIRPORT (U)

THE RELATIVE EFFECTIVENESS OF THREE CHANGES IN AIRCRAFT OPERATING PROCEDURES AND/OR AIRCRAFT HARDWARE IN REDUCING NOISE EXPOSURE AROUND THREE MAJOR AIRPORTS (O'HARE INTERNATIONAL AIRPORT, CHICAGO, JOHN F. KENNEDY AIRPORT, NEW YORK, AND LOS ANGELES INTERNATIONAL AIRPORT) WERE RATED BY DETERMINING THE RELATIVE CHANGE IN LAND AREAS FALLING WITHIN NOISE EXPOSURE FORECAST (NEF) 30 AND 40 CONTOURS. FOR PROJECTED 1975 OPERATIONS, SETS OF NEF CONTOURS WERE CALCULATED FOR CHANGES WHICH INCLUDED: POWER CUTBACKS AFTER TAKEOFF AND TWO SEGMENT APPROACHES FOR ALL AIRCRAFT, AND RETROFIT OF CURRENT FOUR-ENGINE TURBOFAN AIRCRAFT WITH EITHER ACOUSTICALLY - LINED NACELLES OR WITH A 'QUIET' ENGINE UNDER DEVELOPMENT BY NASA. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 711 131 20/1
BOLT BERANEK AND NEWMAN INC VAN NUYS CALIF

NOISE EXPOSURE FORECASTS: EVOLUTION, EVALUATION, EXTENSIONS, AND LAND USE INTERPRETATIONS. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
AUG 70 80P GALLOWAY,WILLIAM J. ;BISHOP, DWIGHT E. ;
CONTRACT: DOT-FA68WA-1900
MONITOR: FAA-NO 70-9

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIRCRAFT NOISE, PREDICTIONS), PSYCHOACOUSTICS, AIRPORTS, JET PLANE NOISE, INTENSITY, AUDITORY PERCEPTION (U)
IDENTIFIERS: *NOISE POLLUTION, NOISE EXPOSURE, *LAND USE (U)

PART I DESCRIBES THE EVOLUTION OF METHODS FOR RELATING AIRCRAFT NOISE EXPOSURE TO COMMUNITY RESPONSE IN THIS COUNTRY, STARTING WITH THE ORIGINAL COMPOSITE NOISE RATING (CNR) CONCEPT DEVELOPED IN 1952, AND WITH APPLICATIONS SPECIFICALLY TO AIRCRAFT NOISE IN 1957 UNDER AIR FORCE SPONSORSHIP. THE DEVELOPMENT OF CNR PROCEDURES FOR CIVIL AND MILITARY AIRCRAFT IN 1962 UTILIZING PERCEIVED NOISE LEVEL CONTOURS AND THE DEVELOPMENT OF NOISE EXPOSURE FORECAST (NEF) PROCEDURES IN 1967 UTILIZING EFFECTIVE PERCEIVED NOISE LEVEL DATA ARE RECOUNTED AND COMPARED. PART II INTERPRETS THE NOISE EXPOSURE DUE TO AIRCRAFT OPERATIONS, AS EXPRESSED IN NOISE EXPOSURE FORECAST (NEF) VALUES, IN TERMS OF ESTIMATED IMPACT ON LAND USES. ASSESSMENTS OF THE LAND USE COMPATIBILITY WITH AIRCRAFT NOISE AS A FUNCTION OF NEF VALUES ARE GIVEN FOR A VARIETY OF LAND USES FOR THE PURPOSE OF PROVIDING GUIDES IN LAND USE PLANNING, ZONING AND IN LAND USE DEVELOPMENT AND BUILDING CONSTRUCTION. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 711 359 20/1
SCHOOL OF AEROSPACE MEDICINE BROOKS AFB TEX

AIRSPEED INFLUENCE ON NOISE WITHIN FIXED- AND ROTARY-WING AIRCRAFT. (U)

DESCRIPTIVE NOTE: RESEARCH REPT. JAN 66-OCT 69, JUN 70 21P GASAWAY,DONALD C. ;
REPT. NO. SAM-TR-70-27
PROJ: AF-7755
TASK: 775508

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIRCRAFT NOISE, *AIRSPEED), COCKPITS, SPEECH, INTERFERENCE, INTELLIGIBILITY, PROPELLER NOISE, ROTARY WINGS, AIRPLANE ENGINE NOISE (U)

THE INFLUENCE OF INCREASED MOTIVE POWER AND AIRSPEED ON NOISE LEVELS WITHIN 163 FIXED- AND ROTARY-WING AIRCRAFT IS DEPICTED IN 9 NOISE-EXPOSURE ENVELOPES. INCREASED POWER AND AIRSPEED RESULTED IN INCREMENTS IN COCKPIT NOISE IN ALL OF THESE AIRCRAFT GROUPS. CHANGES IN ACOUSTIC SPECTRA AND SPEECH INTERFERENCE ARE ILLUSTRATED AND DESCRIBED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 711 910 20/1 17/1
NATIONAL ACADEMY OF SCIENCES-NATIONAL RESEARCH COUNCIL
WASHINGTON D C COMM ON HEARING BIOACOUSTICS BIOMECHANICS

SONAR DETECTION OF SUBMARINES BY HELICOPTER. (U)

AUG 70 10P
CONTRACT: NONR-2300(05)

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPORT OF WORKING GROUP 54, PETER WESTERVELT, CHAIRMAN.

DESCRIPTORS: (*AIRPLANE ENGINE NOISE, AUDITORY SIGNALS), (*SONAR EQUIPMENT, ANTISUBMARINE AIRCRAFT), (*HELICOPTERS, SONAR PERSONNEL), HELMETS, ATTENUATION, ACOUSTIC FILTERS, ACOUSTIC INSULATION, HEARING, THRESHOLDS(PHYSIOLOGY), EARPHONES, HUMAN FACTORS ENGINEERING (U)

THE REPORT ADVISES THE MILITARY SERVICES CONCERNING MEANS FOR IMPROVING THE EFFICIENCY OF THE SEARCH TECHNIQUE OF SONAR OPERATORS AND CREW MEMBERS INVOLVED IN SEARCHING FOR SUBMARINES BY MEANS OF HELICOPTER-BORNE EQUIPMENT. MEASURES ARE ALSO SUGGESTED FOR PROTECTING THE HEARING OF THE SONAR OPERATOR AND THE CREW OF THE HELICOPTER. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 712 646 20/1 1/5 13/2
BOLT BERANEK AND NEWMAN INC VAN NUYS CALIF

NOISE EXPOSURE FORECAST CONTOURS FOR 1967, 1970 AND 1975 OPERATIONS AT SELECTED AIRPORTS. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
SEP 70 274P BISHOP,DWIGHT E. ;SIMPSON, MYLES A. ;
CONTRACT: FA-68-WA-1900
MONITOR: FAA-NO 70-8

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIRCRAFT NOISE, PREDICTIONS), (*AIRPORTS, AIRCRAFT NOISE), AUDITORY PERCEPTION, COMMERCIAL PLANES (U)
IDENTIFIERS: *NOISE POLLUTION, FORECASTING, LAND USE (U)

NOISE EXPOSURE FORECAST (NEF) CONTOURS RESULTING FROM 1967, 1970, AND 1975 AIRCRAFT OPERATIONS ARE DEPICTED FOR 28 AIRPORTS. INCLUDED ARE CONTOURS FOR LARGE, MEDIUM AND SMALL COMMERCIAL AIRPORTS AND GENERAL AVIATION AIRPORTS. THE NEF CONTOURS DEFINE LAND AREAS HAVING DIFFERENT LAND-USE COMPATIBILITY WITH RESPECT TO AIRCRAFT NOISE; HENCE, THE NEF AREAS MAY BE USED AS A GUIDE TO LAND-USE PLANNING AND ZONING AND AIRPORT DEVELOPMENT. THE NEF CONTOURS ARE BASED UPON THE AIRCRAFT NOISE DESCRIBED IN TERMS OF EFFECTIVE PERCEIVED NOISE LEVELS (WHICH INCLUDES CORRECTIONS FOR DURATION AND PRESENCE OF DISCRETE FREQUENCIES) PLUS ADJUSTMENTS FOR THE NUMBER OF OPERATIONS FOR DAYTIME AND NIGHTTIME PERIODS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 712 667 20/1 1/3 5/5
SCHOOL OF AEROSPACE MEDICINE BROOKS AFB TEX

NOISE ASSOCIATED WITH OPERATION OF AIR FORCE OV-10A AIRCRAFT. (U)

DESCRIPTIVE NOTE: FINAL REPT. APR-MAY 70, AUG 70 20P GASAWAY,DONALD C. ;
REPT. NO. SAM-TR-70-51
PROJ: AF-7755
TASK: 775508

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIRCRAFT NOISE, SHORT TAKEOFF AIRCRAFT), (*SHORT TAKEOFF AIRCRAFT, HUMAN FACTORS ENGINEERING), (*RECONNAISSANCE AIRCRAFT, AIRCRAFT NOISE), AVIATION MEDICINE, UTILITY AIRCRAFT, OBSERVATION AIRCRAFT, AUDITORY PERCEPTION, COCKPITS (U)
IDENTIFIERS: V-10 AIRCRAFT, OV-10A AIRCRAFT, COIN AIRCRAFT (U)

NOISE MEASUREMENTS ARE DESCRIBED FOR NEAR-FIELD POSITIONS DURING ENGINE-STARTING AND PRE-TAKEOFF PHASES OF THE OV-10A AIRCRAFT. THE INTERNAL NOISE ENVIRONMENT DURING VARIOUS PHASES OF GROUND AND AIRBORNE OPERATIONS IS DESCRIBED AND ILLUSTRATED. FEATURES OF AEROMEDICAL IMPORTANCE ARE EMPHASIZED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 712 734 20/1 5/10
BOLT BERANEK AND NEWMAN INC VAN NUYS CALIF

THE EFFECTS OF TEMPORAL AND SPECTRAL COMBINATIONS ON THE JUDGED NOISINESS OF AIRCRAFT SOUNDS. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUN 69 82P PEARSONS,KARL S. ;BENNETT, RICARDA L. ;
REPT. NO. BRN-1722
CONTRACT: FA-68-WA-1978
MONITOR: FAA-NO 69-3

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIRCRAFT NOISE, *PSYCHOACOUSTICS), VERTICAL TAKEOFF AIRCRAFT, HELICOPTERS, TURBOFAN ENGINES, TURBOJET ENGINES, TURBOPROP ENGINES, FREQUENCY, STUDENTS, ACOUSTIC SIGNALS, TIME, SPECTRUM SIGNATURES, PERFORMANCE(HUMAN), MATHEMATICAL ANALYSIS, CORRECTIONS, ANECHOIC CHAMBERS (U)
IDENTIFIERS: STIMULUS(PSYCHOPHYSIOLOGY) (U)

TESTS WERE PERFORMED IN AN ANECHOIC CHAMBER USING COLLEGE STUDENTS TO DETERMINE THE JUDGED NOISINESS OF STIMULI VARYING BOTH TEMPORALLY AND SPECTRALLY. THE INVESTIGATIONS WERE DIVIDED INTO THREE TEST SERIES. THE FIRST TEST SERIES USED THIRTY STIMULI WITH SIX DIFFERENT TIME PATTERNS AND FIVE DIFFERENT SPECTRA. THE SECOND TEST USED STIMULI SELECTED FROM THE FIRST TEST BUT MODIFIED TO INCLUDE SIGNAL DURATIONS RANGING FROM 1 TO 100 SECONDS. DURATION IN THIS CASE IS THE AMOUNT OF TIME THE STIMULI WERE WITHIN 10 DB OF THE MAXIMUM LEVEL. THE STIMULI FOR THE THIRD TEST CONSISTED OF RECORDINGS OF TURBOPROP, TURBOFAN, TURBOJET AND HELICOPTER FLYOVERS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 715 222 20/1 1/3 6/19
SCHOOL OF AEROSPACE MEDICINE BROOKS AFB TEX

NOISE ASSOCIATED WITH OPERATION OF THE C-9A (AEROMEDICAL EVACUATION) AIRCRAFT. (U)

DESCRIPTIVE NOTE: FINAL REPT. JUL 68-MAR 70,
OCT 70 27P GASAWAY,DONALD C. ;
REPT. NO. SAM-TR-70-63
PROJ: AF-7755
TASK: 775508

UNCLASSIFIED REPORT

DESCRIPTORS: (*JET PLANE NOISE, *AVIATION MEDICINE), (*JET TRANSPORT PLANES, JET PLANE NOISE), OPERATION, EXPOSURE(PHYSIOLOGY), SPEECH, INTERFERENCE, HEARING, CONTROL (U)
IDENTIFIERS: C-9 AIRCRAFT (U)

NOISE WITHIN THE DOUGLAS C-9A DURING VARIOUS PHASES OF OPERATION IS DESCRIBED AND ILLUSTRATED. NEAR-FIELD ACOUSTIC EXPOSURES ARE ALSO DISCUSSED AND ILLUSTRATED. DEGREES OF SPEECH INTERFERENCE AND AUDITORY RISK ARE DISCUSSED AND METHODS OF CONTROLLING POTENTIALLY UNDESIRABLE EFFECTS ARE PROPOSED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 716 766 6/16 6/19
NAVAL AEROSPACE MEDICAL RESEARCH LAB PENSACOLA FLA

A PROGRESS REPORT ON THE NAVAL AVIATORS' SPEECH DISCRIMINATION TEST, (U)

JUN 70 11P GREENE,JAMES W. ;
REPT. NO. NAMRL-1110
PROJ: MF12.524.005, A34-531/561/70F1252-44-02
MONITOR: NAVMED MF12.524.005-7011B-1

UNCLASSIFIED REPORT

DESCRIPTORS: (*PILOTS, AUDITORY ACUITY), (*TEST CONSTRUCTION(PSYCHOLOGY), EFFECTIVENESS), AIRCRAFT NOISE, HEARING, TEST METHODS, DAMAGE, PERFORMANCE(HUMAN), STATISTICAL DATA (U)

THE DOCUMENT IS CONCERNED WITH THE NAVAL AVIATORS' SPEECH DISCRIMINATION TEST (NASDT) WHICH IS USED TO PROVIDE AN OBJECTIVE BASIS FOR GRANTING WAIVERS TO SENIOR AVIATORS WHO FAIL TO MEET THE PURE-TONE HEARING STANDARDS BUT WHO EXPERIENCE NO HEARING DIFFICULTIES IN THEIR WORKING ENVIRONMENT. THE TEST IS ALSO ADMINISTERED TO GROUPS OF STUDENT AVIATORS AND PARTICIPANTS IN THE PENSACOLA 'THOUSAND AVIATOR' STUDY. FROM AN ANALYSIS OF THE DATA THAT HAVE BEEN OBTAINED TO DATE, IT APPEARS THAT THE NASDT HAS FULFILLED ITS ORIGINAL PURPOSE AND HAS LED TO A MORE REALISTIC AND PRACTICAL EVALUATION OF THE HEARING OF SENIOR NAVAL AVIATORS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOM09

AD- 716 814 20/1
AEROSPACE MEDICAL RESEARCH LAB WRIGHT-PATTERSON AFB OHIO

ACOUSTIC ENVIRONMENTS PRODUCED BY THE C-5A AIRCRAFT DURING GROUND OPERATIONS. (U)

DESCRIPTIVE NOTE: FINAL REPT. SEP 69-APR 70, OCT 70 113P COLE,JOHN N. ;POWELL, ROBERT G. ;
REPT. NO. AMRL-TR-70-53
PROJ: AF-7231
TASK: 723104

UNCLASSIFIED REPORT

DESCRIPTORS: (*JET PLANE NOISE, *TAXIING), (*JET TRANSPORT PLANES, JET PLANE NOISE), TAKEOFF, SPEECH, INTERFERENCE, AUDITORY PERCEPTION, EXPOSURE(PHYSIOLOG(U)
IDENTIFIERS: *NOISE POLLUTION, SOUND PRESSURE, C-5A AIRCRAFT, C-5 AIRCRAFT (U)

SOUND PRESSURE LEVELS PRODUCED BY THE C-5A AIRCRAFT DURING GROUND RUNUP AT IDLE, TAXI, AND TAKEOFF POWER SETTINGS WERE MEASURED AT LOCATIONS 200 METERS RADIALLY DISTANT FROM THE AIRCRAFT. THESE DATA WERE USED TO COMPUTE POWER SPECTRA, DIRECTIVITY INDICES, AND CONTOURS OF EQUAL SOUND PRESSURE LEVEL, A-WEIGHTED OVERALL SOUND LEVEL, PERMISSIBLE EXPOSURE TIME, SPEECH INTERFERENCE LEVEL AND PERCEIVED NOISE LEVEL (TONE-CORRECTED). THESE CONTOURS CAN BE USED TO ESTIMATE THESE QUANTITIES OVER A MAXIMUM RANGE FROM 125 TO 1500 METERS FROM THE AIRCRAFT DURING GROUND OPERATION FOR STANDARD METEOROLOGICAL CONDITIONS. MEASUREMENTS WERE ALSO MADE AT MORE THAN 40 LOCATIONS WHERE MAINTENANCE AND GROUND CREWS MUST TYPICALLY BE LOCATED DURING NORMAL OPERATIONS. A-WEIGHTED AND C-WEIGHTED OVERALL SOUND LEVELS AND PERMISSIBLE EXPOSURE TIMES WERE DETERMINED FOR PERSONNEL AT THESE LOCATIONS WITH AND WITHOUT EAR PROTECTION. PREFERRED SPEECH INTERFERENCE LEVELS WERE ALSO DETERMINED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 717 394 17/2 6/16
CIVIL AEROMEDICAL INST OKLAHOMA CITY OKLA

AUDITORY PROCESSING FOR SPEECH INTELLIGIBILITY IMPROVEMENT, (U)

APR 70 12P TOBIAS,JERRY V. ;
MONITOR: FAA-AM 70-6

UNCLASSIFIED REPORT

DESCRIPTORS: (*SPEECH, *INTELLIGIBILITY), (*HEARING, SIGNAL-TO-NOISE RATIO), AUDITORY PERCEPTION, AUDITORY SIGNALS, AIRCRAFT NOISE, AVIATION SAFETY (U)

PILOTS OF LIGHT AIRCRAFT OFTEN SEEM TO PREFER LOUDSPEAKERS TO EARPHONES EVEN THOUGH COVERING THE EARS HELPS MOST OF THEM TO IMPROVE THE SIGNAL-TO-NOISE RATIO OF SPEECH TRANSMISSIONS, AND TO DECREASE THE PILOT'S EXPOSURE TO FATIGUING NOISE. THE AUDITORY-FATIGUE PROBLEM CAN BE HANDLED BY PILOT EDUCATION; THE PROBLEM OF DETERIORATING SIGNAL-TO-NOISE RATIOS, THOUGH, CAN BE APPROACHED NOT JUST BY PUTTING EARPHONES ON FLIERS BUT ALSO BY APPLYING TO THE LOUDSPEAKER SITUATION SOME OF THE THEORETICAL PRINCIPLES THAT HAVE LED TO TECHNIQUES OF APPARENT SIGNAL-LEVEL IMPROVEMENT AND REAL SPEECH-INTELLIGIBILITY IMPROVEMENT UNDER EARPHONES. THE HUMAN AUDITORY SYSTEM, APPROPRIATELY STIMULATED, IS CAPABLE OF CREATING THE EFFECT OF AN IMPROVED SIGNAL-TO-NOISE RATIO WITHOUT ACTUALLY CHANGING EITHER THE SIGNAL OR THE NOISE INTENSITIES. TESTS OF THESE TECHNIQUES SHOW THAT THEIR PROPER APPLICATION TO A LOUDSPEAKER-LISTENING SITUATION IS EQUIVALENT TO A 5-DB IMPROVEMENT IN SIGNAL-TO-NOISE RATIO. SINCE THE METHOD IS BASED IN THE HUMAN OBSERVER'S SIGNAL-PROCESSING ABILITY, IT REQUIRES NO SPECIAL EQUIPMENT IN THE AIRCRAFT. TWO LOUDSPEAKERS ARE USED, DRIVEN FROM THE SAME SIGNAL SOURCE, BUT WITH THE TWO SPEAKERS WIRED IN OPPOSITE PHASE TO EACH OTHER. WITHIN BROAD LIMITS, VARIATIONS IN SPEAKER PLACEMENT PERMIT THE IMPROVED RESULTS. THESE LIMITS ARE DEFINED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 717 846 6/16
SCHOOL OF AEROSPACE MEDICINE BROOKS AFB TEX

STATUS OF PURE-TONE AUDIOMETRY IN USAF HEARING PROGRAMS. (U)

DESCRIPTIVE NOTE: FINAL REPT. JUL 69-APR 70, NOV 70 20P GASAWAY,DONALD C. ; SUTHERLAND,HARRELL C. , JR;
REPT. NO. SAM-TR-70-68
PROJ: AF-7755
TASK: 775508

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIR FORCE PERSONNEL, AUDITORY PERCEPTION), (*AUDIOMETRY, MILITARY MEDICINE), (*JET PLANE NOISE, HAZARDS), MONITORS, PHYSICAL FITNESS, APTITUDE TESTS, THRESHOLDS(PHYSIOLOGY), TOLERANCES(PHYSIOLOGY) (U)
IDENTIFIERS: HEARING CONSERVATION (U)

PURE-TONE AUDIOMETRY IS USED IN THE U. S. AIR FORCE IN SUPPORT OF THREE TESTING PRO GRAMS: AUDIOMETRIC MONITORING OF PERSONS ROUTINELY EXPOSED TO POTENTIALLY HAZARDOUS NOISE; DETERMINING COMPLIANCE WITH PHYSICAL EXAMINATION PROFILES (ENTRANCE INTO GENERAL SERVICE AND CERTAIN CAREER FIELDS AND CONTINUANCE AND SEPARATION EVALUATIONS); AND DIAGNOSTIC EVALUATIONS (DIFFERENTIAL DIAGNOSIS AND AURAL REHABILITATION). THE REPORT PROVIDES INSIGHT CONCERNING THE STATUS OF AUDIOMETERS AND AUTIOMETRY USED AT USAF MEDICAL ACTIVITIES. MAJOR EMPHASIS IS GIVEN TO SIMPLE PURE-TONE AUDIOMETRY USED TO MONITOR THE HEARING OF PERSONS INCLUDED IN THE AIR FORCE HEARING CONSERVATION PROGRAM AND AUDIOMETRY PERFORMED TO DETERMINE PHYSICAL PROFILES. GUIDANCE IS PROVIDED CONCERNING PRIMARY AND SECONDARY FACTORS WHICH CONTRIBUTE TO ERRORS IN AUTIOMETRY. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 717 852 20/1 6/19
SCHOOL OF AEROSPACE MEDICINE BROOKS AFB TEX

COCKPIT NOISE WITHIN TRAINER AIRCRAFT. (U)

DESCRIPTIVE NOTE: FINAL REPT. FEB--OCT 70,
DEC 70 22P GASAWAY,DONALD C. ;
REPT. NO. SAM-TR-70-95
PROJ: AF-7755
TASK: 775508

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIRCRAFT NOISE, *COCKPITS), (*TRAINING PLANES, AIRCRAFT NOISE), (*AVIATION MEDICINE, PILOTS), HEARING, AUDITORY ACUITY, PROTECTION (U)

ROUTINE UNPROTECTED EXPOSURE TO ACOUSTIC NOISE WITHIN COCKPITS OF MANY TRAINER AIRCRAFT REPRESENTS POTENTIALLY HAZARDOUS STRESS. THE CHARACTER OF THE ACOUSTIC NOISE FOUND WITHIN THE COCKPITS OF FIXED- AND ROTARY-WING AIRCRAFT USED PRIMARILY FOR FLYING TRAINING IS DESCRIBED AND ILLUSTRATED. THE EFFECT OF VARIOUS MANEUVERS COMMONLY ENCOUNTERED IN TRAINING FLIGHTS ON COCKPIT NOISE IS EVALUATED, AND FACTORS OF AEROMEDICAL SIGNIFICANCE ASSOCIATED WITH NOISE IN TRAINER AIRCRAFT ARE IDENTIFIED AND DESCRIBED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 718 097 20/1 6/19
SCHOOL OF AEROSPACE MEDICINE BROOKS AFB TEX

NOISE ASSOCIATED WITH AIRBORNE OPERATION OF C-141A AIRCRAFT. (U)

DESCRIPTIVE NOTE: FINAL REPT. 1 MAR 69-28 FEB 70,
DEC 70 33P GASAWAY,DONALD C. ;
REPT. NO. SAM-TR-70-74
PROJ: AF-7755
TASK: 775508

UNCLASSIFIED REPORT

DESCRIPTORS: (*JET PLANE NOISE, *AVIATION MEDICINE), OPERATION, SPEECH, INTERFERENCE, HEARING, CONTROL, REDUCTION (U)
IDENTIFIERS: C-141A AIRCRAFT, C-141 AIRCRAFT (U)

ACOUSTIC NOISE MEASUREMENTS OBTAINED WITHIN SEVERAL LOCKHEED C-141A AIRCRAFT DURING VARIOUS OPERATIONAL MISSIONS ARE REPORTED; FACTORS OF AEROMEDICAL SIGNIFICANCE ARE IDENTIFIED AND DESCRIBED; AND METHODS WITH WHICH UNDESIRABLE EFFECTS CAN BE CONTROLLED ARE PROPOSED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOM09

AD- 718 098 17/2 20/1
SCHOOL OF AEROSPACE MEDICINE BROOKS AFB TEX

SIX INDICES FOR PREDICTING SPEECH INTERFERENCE WITHIN AIRCRAFT, (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL 1 OCT 68-6 JUL 70,
DEC 70 35P GASAWAY,DONALD C. ;
REPT. NO. SAM-TR-70-72
PROJ: AF-7755
TASK: 775508

UNCLASSIFIED REPORT

DESCRIPTORS: (*SPEECH, INTERFERENCE), (*VOICE COMMUNICATIONS, INTELLIGIBILITY), (*AIRCRAFT NOISE, AUDITORY PERCEPTION), AVIATION MEDICINE, MATHEMATICAL PREDICTION, ATTENUATION (U)

ACOUSTIC NOISE WITHIN AIRCRAFT DURING FLIGHT OFTEN CAUSES SOME DEGREE OF INTERFERENCE WITH AURAL COMMUNICATION. SEVERAL METHODS HAVE BEEN USED OVER THE YEARS TO IDENTIFY AND PREDICT DEGREES OF SPEECH INTERFERENCE. SIX OF THESE METHODS ARE DISCUSSED: FOUR INVOLVE OCTAVE-BAND AVERAGING; TWO USE FREQUENCY WEIGHTING. THE ASSESSMENT IS BASED ON APPLICATION OF EACH OF THE SIX INDICES TO NOISE LEVELS MEASURED WITHIN THE COCKPITS OF 191 FIXED-WING AND 58 ROTARY-WING AIRCRAFT, GROUPED INTO 11 CATEGORIES BY ENGINE TYPE. EQUIVALENT SPEECH INTERFERENCE LEVELS OBTAINED FROM THE USE OF EACH OF THE SIX INDICES ARE PROVIDED FOR THE ACOUSTIC SPECTRA DEVELOPED FOR THE 11 CLASSES OF VEHICLES. THE OPERATIONAL CONSIDERATIONS WHICH INFLUENCE SPEECH INTERFERENCE VALUES ARE DESCRIBED. NOISE ATTENUATION PROVIDED BY HEADSET DEVICES COMMONLY USED BY AIR FORCE AIRCREW MEMBERS IS SHOWN FOR DIFFERENT GROUPS OF NOISE SPECTRA. CRITERIA ARE GIVEN FOR EVALUATING PROTECTED AND UNPROTECTED EXPOSURES TO NOISE THAT COMPROMISE COMMUNICATIONS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 721 010 20/1 1/3
WYLE LABS INC HUNTSVILLE ALA RESEARCH STAFF

NOISE PRIMER FOR THE SUPERSONIC TRANSPORT. (U)

MAR 71 34P
CONTRACT: FA-SS-71-9

UNCLASSIFIED REPORT

DESCRIPTORS: (*JET PLANE NOISE, *SUPERSONIC AIRCRAFT), (*JET TRANSPORT PLANES, *COMMERCIAL PLANES), SONIC BOOM, LAW, UNITED STATES GOVERNMENT, JET ENGINE NOISE, AIRPORTS, REDUCTION, URBAN AREAS (U)
IDENTIFIERS: *NOISE POLLUTION, *SUPERSONIC TRANSPORTS (U)

THE FIRST AIM OF THE BOOKLET IS TO CLARIFY THE BASIC CONCEPTS AND TERMINOLOGY NECESSARY IN ANY DISCUSSION OF AIRPORT-COMMUNITY NOISE AND THE SST. THE SECOND AIM OF THE BOOKLET IS TO DESCRIBE THE EXPECTED NOISE OF THE PLANNED COMMERCIAL SST--USING THE TERMINOLOGY AND CONCEPTS DEVELOPED TO DESCRIBE AIRCRAFT NOISE. THIS DESCRIPTION TRIES TO PUT SST NOISE INTO PERSPECTIVE BY: SUMMARIZING THE STATUS OF THE MAJOR EFFORTS TO REDUCE SST NOISE; CLARIFYING SOME OF THE OLD NUMERICAL VALUES FOR SST NOISE WHICH HAVE CAUSED CONFUSION; COMPARING THE NOISE OF THE SST WITH THAT OF OTHER AIRPLANES IN TERMS OF CERTIFICATION NOISE LEVELS; AND SHOWING HOW THE AIRPORT-COMMUNITY NOISE FROM SST OPERATIONS FITS INTO THE NOISE PICTURE ALONG WITH THE NEW AIRPLANES OF THE FUTURE. (AUTHOR) (U)

AD-A046 800 DEFENSE DOCUMENTATION CENTER ALEXANDRIA VA F/G 5/2
ENVIRONMENTAL POLLUTION: NOISE POLLUTION-AIRPLANE NOISE.(U)
NOV 77

UNCLASSIFIED DDC/BIB-77/11 NL

2 OF 5
AD
A046 800



DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 721 312 20/1 1/2
BOEING CO PHILADELPHIA PA VERTOL DIV

AN INVESTIGATION OF NOISE GENERATION ON A HOVERING ROTOR. (U)

DESCRIPTIVE NOTE: FINAL REPT. 30 JUN 69-30 JAN 71, JAN 71 370P STERNFELD,H. ;SPENCER,R. H. ;SCHAIRER,J. O. ;
REPT. NO. D210-10229-1
CONTRACT: DAHC04-69-C-0087
MONITOR: AROD 8704:2-E

UNCLASSIFIED REPORT

DESCRIPTORS: (*HELICOPTER ROTORS, *PROPELLER NOISE), HELICOPTERS, HOVERING, VORTICES, AIRCRAFT NOISE, ROTARY WINGS, TEST METHODS (U)

THIS REPORT PRESENTS THE RESULTS OF A PROGRAM OF HELICOPTER ROTOR NOISE MEASUREMENT. THE PROGRAM WAS CARRIED OUT USING A 60-FOOT DIAMETER CH-47B 3-BLADED ROTOR ON THE BOEING-VERTOL ENGINEERING ROTOR WHIRL TOWER. THE PRIMARY OBJECTIVES WERE: TO OBTAIN ACOUSTICAL DATA OVER A FREQUENCY RANGE WIDE ENOUGH TO DEFINE ALL ELEMENTS OF ROTOR NOISE UNDER WELL-DOCUMENTED AMBIENT CONDITIONS, TO MEASURE THE TIP VORTEX POSITION WITH RESPECT TO A TRAILING BLADE USING HIGH-SPEED CAMERAS AND SMOKE TO VISUALIZE THE TIP VORTEX AND TO RELATE BLADE-VORTEX SEPARATION DISTANCE TO NOISE LEVEL, TO DETERMINE THE PROPAGATION CHARACTERISTICS OF ROTOR NOISE, AND TO EVALUATE TWO CURRENT ANALYTICAL PROCEDURES FOR PREDICTING ROTOR NOISE AGAINST THE MEASURED DATA. TIPSPEEDS RANGED FROM 600 TO 900 FPS AND THRUSTS RANGED FROM 6300 TO 32,000 POUNDS (DISK LOAD 2.2 TO 11.3 POUNDS PER SQUARE FOOT). (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 722 365 20/1 1/5
BOLT BERANEK AND NEWMAN INC CAMBRIDGE MASS

NOISE EXPOSURE FORECAST CONTOURS FOR EXPECTED 1985 AND 1990 OPERATIONS AT SEVEN U. S. AIRPORTS. (U)

JAN 71 93P
REPT. NO. BBN-2076

UNCLASSIFIED REPORT

DESCRIPTORS: (*JET PLANE NOISE, PREDICTIONS), (*AIRPORTS, PLANNING), SUPERSONIC AIRCRAFT, COMMERCIAL PLANES, JET TRANSPORT PLANES, TAKEOFF, STATISTICAL DA(U)
IDENTIFIERS: *NOISE POLLUTION, *SUPERSONIC TRANSPORT PLANES (U)

THE REPORT SUMMARIZES A STUDY OF THE PROBABLE IMPACT OF FUTURE SUPERSONIC TRANSPORT (SST) AIRCRAFT OPERATIONS ON THE NOISE ENVIRONMENT AROUND SEVEN AIRPORTS IN THE UNITED STATES. THE NOISE ENVIRONMENT IS DEPICTED IN TERMS OF NOISE EXPOSURE FORECAST (NEF) CONTOURS OF NEF 30 AND 40 VALUES FOR PROJECTED 1985 AND 1990 OPERATIONS AT THE FOLLOWING SEVEN AIRPORTS: ANCHORAGE INTERNATIONAL AIRPORT (ANC); LOGAN INTERNATIONAL AIRPORT, BOSTON (BOS); HONOLULU INTERNATIONAL AIRPORT (HNL); JOHN F. KENNEDY INTERNATIONAL AIRPORT, NEW YORK (JFK); LOS ANGELES INTERNATIONAL AIRPORT (LAX); SEATTLE-TACOMA INTERNATIONAL AIRPORT (SEA); SAN FRANCISCO INTERNATIONAL AIRPORT (SFO). SETS OF NOISE CONTOURS ARE GIVEN FOR EACH AIRPORT FOR THE TWO PROJECTIONS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 722 366 20/1 1/2
BOLT BERANEK AND NEWMAN INC CAMBRIDGE MASS

EFFECTS OF SST TAKEOFF PROCEDURES ON NOISE EXPOSURE, AND REVIEW OF EPNL VARIATIONS WITH DISTANCE. (U)

APR 71 57P
REPT. NO. BBN-2090
CONTRACT: DOT-FA-SS-71-8

UNCLASSIFIED REPORT

DESCRIPTORS: (*JET PLANE NOISE, *TAKEOFF), (*SUPERSONIC AIRCRAFT, JET PLANE NOISE), COMMERCIAL PLANES, JET TRANSPORT PLANES, INTENSITY, AIRPORTS, AUDITORY PERCEPTION (U)
IDENTIFIERS: *SUPERSONIC TRANSPORTS, DISTANCE (U)

THE REPORT SUMMARIZES THE RESULTS OF A STUDY OF NOISE EXPOSURE FROM SUPERSONIC TRANSPORT (SST) OPERATIONS AND THE ESTIMATION OF CHANGES IN SST NOISE LEVELS WITH DISTANCE, FROM CURRENTLY AVAILABLE DATA. THE REPORT IS PRESENTED IN TWO PARTS. PART I DESCRIBES A STUDY OF THE EFFECTS OF SST TAKEOFF OPERATIONAL PROCEDURES ON AIRCRAFT NOISE EXPOSURE FOR A SIMPLIFIED AIRPORT SITUATION. FACTORS CONSIDERED INCLUDE AIRCRAFT MIX, TAKEOFF CLIMB PROFILES AND AIRCRAFT NOISE LEVELS. PART II DISCUSSES METHODS OF ESTIMATING VARIATIONS OF EFFECTIVE PERCEIVED NOISE LEVEL (EPNL) WITH SLANT DISTANCE FOR SST AIRCRAFT. EMPHASIS IS PLACED ON ESTIMATING THESE NOISE LEVELS AT LARGE DISTANCES BETWEEN THE AIRCRAFT AND THE OBSERVER. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOM09

AD- 722 851 21/5 20/1
BOLT BERANEK AND NEWMAN INC CAMBRIDGE MASS

EXPLORATORY INVESTIGATION OF JET ENGINE SILENCING WITH PLUG NOZZLE CONFIGURATIONS, (U)

APR 71 23P SCHARTON,TERRY D. ;PINKEL, BENJAMIN J. ;TOMOOKA,SUYEO ;
REPT. NO. BBN-2089
CONTRACT: DOT-FA-SS-71-6

UNCLASSIFIED REPORT

DESCRIPTORS: (*PLUG NOZZLES, FEASIBILITY STUDIES), (*JET ENGINE NOISE, ATTENUATION), CONFIGURATION, NOZZLE GAS FLOW, ACOUSTIC IMPEDANCE, SUPERSONIC FLOW, NOZZLE THROATS, NOZZLE AREA RATIO, THRUST (U)

THE OBJECTIVE IN THE PRESENT EXPLORATORY INVESTIGATION WAS TO DETERMINE EXPERIMENTALLY WHETHER SIGNIFICANT SILENCING COULD BE OBTAINED WITH NOISE SUPPRESSORS THAT COULD BE CONVENIENTLY INCORPORATED WITHIN THE PLUG NOZZLE CONFIGURATION. THE 1/3-OCTAVE BAND SOUND POWER RADIATED BY THE PLUG NOZZLE INCORPORATING VARIOUS SUPPRESSOR CONCEPTS WAS COMPARED WITH THAT OF THE CONVENTIONAL CONVERGING-DIVERGING NOZZLE AND WITH THAT OF THE CONVENTIONAL MULTI-TUBE NOZZLE NOISE SUPPRESSOR. COMPARISONS WERE ALSO MADE OF THE MEASURED THRUST OF THE VARIOUS NOZZLES AND OF THE DIRECTIVITY OF THE RADIATED SOUND. SHADOW-GRAPH PICTURES OF THE FLOW FROM SOME OF THE NOZZLES WERE OBTAINED. THE TESTS WERE MADE MAINLY AT A RATIO OF NOZZLE TOTAL PRESSURE TO AMBIENT PRESSURE OF 3 WHICH IS REPRESENTATIVE OF THE PRESSURE RATIOS DURING TAKE-OFF IN HIGH PERFORMANCE TURBOJET ENGINES (JET MACH NUMBER APPROXIMATELY 1.4). (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 723 579 20/1 1/2
FEDERAL AVIATION ADMINISTRATION WASHINGTON D C SYSTEMS RESEARCH AND DEVELOPMENT SERVICE

AIRCRAFT NOISE STANDARDS AND REGULATIONS. (U)

DESCRIPTIVE NOTE: SPEECH REPT. MAR-APR 71, APR 71 74P POWER, JOSEPH K. ;
REPT. NO. FAA-RD-71-24

UNCLASSIFIED REPORT

DESCRIPTORS: (*JET PLANE NOISE, *STANDARDS), (*UNITED STATES GOVERNMENT, CIVIL AVIATION), JET ENGINE NOISE, SONIC BOOM, TAKEOFF, AIRCRAFT LANDINGS, AIRPORTS, TOLERANCES(PHYSIOLOGY) (U)

THE PAPER DISCUSSES PUBLIC LAW 90-411 AND FAR PART 36 OF FEDERAL REGULATIONS. NOISE EXPOSURE FORECASTS AND VARIOUS SYSTEMS FOR RATING AIRCRAFT NOISE WORLD-WIDE ARE PRESENTED. NOISE CERTIFICATION AND AIRCRAFT RETROFIT REGULATIONS ARE DISCUSSED AS WELL AS AIRCRAFT OPERATIONAL PROCEDURES TO REDUCE NOISE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 724 586 1/2 20/1
FEDERAL AVIATION ADMINISTRATION WASHINGTON D C SYSTEMS RESEARCH AND DEVELOPMENT SERVICE

AN OPERATIONAL EVALUATION OF THE TWO-SEGMENT APPROACH FOR NOISE ABATEMENT. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
APR 71 21P CHURBOY,ROBERT A. ;
REPT. NO. FAA-RD-71-21

UNCLASSIFIED REPORT

DESCRIPTORS: (*INSTRUMENT LANDINGS, *AIRCRAFT NOISE), (*APPROACH, AIRCRAFT NOISE), GLIDE PATH SYSTEMS, GUIDANCE, COMPUTERS, JET TRANSPORT PLANES, COMMERCIAL PLANES (U)
IDENTIFIERS: *NOISE REDUCTION, DC-9 AIRCRAFT, EVALUATION (U)

THE REPORT PRESENTS THE RESULTS OF AN OPERATIONAL EVALUATION OF THE TWO-SEGMENT INSTRUMENT LANDING APPROACH FOR NOISE ABATEMENT PURPOSES. THE EVALUATION WAS PERFORMED USING A FAA DC-9 MODIFIED WITH A SELECTIVE GLIDE SLOPE (SEGS) COMPUTER WHICH PROVIDED THE VERTICAL GUIDANCE FOR THE UPPER SEGMENT. THE RESULTS INDICATE GENERAL ACCEPTABILITY OF THE TWO SEGMENT PROCEDURE FOR VFR OPERATIONS AND SUITABILITY FOR IFR EVALUATION. THE SEGS COMPUTER AS INSTALLED IN THE DC-9 WAS UNSUITABLE FOR IFR OPERATIONS; AUTOPILOT OPERATION, TRANSITION AND IMPROVED UPPER SEGMENT TERMINATION WARNINGS ARE REQUIRED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 727 345 20/1 1/3
NATIONAL AERONAUTICAL ESTABLISHMENT OTTAWA (ONTARIO)

EFFECTIVE SOURCE DISTRIBUTION IN A CHOKED SCREECH JET, (U)

MAY 71 43P LEE,B. H. K. ;WESTLEY,R.
;
REPT. NO. NAE-LR-548
MONITOR: NRC 12111

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIRFRAMES, FATIGUE(MECHANICS)), (*JET ENGINE NOISE, AIRFRAMES), MATHEMATICAL ANALYSIS, MODEL TESTS, SUPERSONIC NOZZLES, TEST EQUIPMENT, SOURCES, NOISE GENERATORS, FEEDBACK, FLOW FIELDS, STATISTICAL DISTRIBUTIONS (U)
IDENTIFIERS: *CHOKED SCREECH JETS, SOUND PRESSURE (U)

USING EXPERIMENTAL MEASUREMENTS OF THE SOUND PRESSURE AND PHASE IN THE NEAR FIELD OF A CHOKED SCREECH JET, A METHOD IS PROPOSED FOR COMPUTING THE EFFECTIVE SOURCE POSITIONS, THEIR STRENGTHS AND PHASES. TWO MODELS ARE CONSIDERED. THE FIRST ASSUMES A DISTRIBUTION OF POINT SOURCES ALONG THE JET AXIS AND THE SECOND ASSUMES RING SOURCES ALONG THE JET BOUNDARY INSTEAD. A TECHNIQUE OF MINIMIZATION DUE TO POWELL IS USED AND A SOLUTION IS ORTAINED WHEN THE SUM OF SQUARES REACHES A MINIMUM. RESULTS FOR A CHOKED JET AT A SCREECH FREQUENCY OF 3170 C/S ARE PRESENTED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 729 067 20/1 6/19
NAVAL ELECTRONICS LAB CENTER SAN DIEGO CALIF

NOISE LEVELS ON AIRCRAFT-CARRIER FLIGHT DECKS, AND THEIR EFFECTS. (U)

DESCRIPTIVE NOTE: RESEARCH AND DEVELOPMENT REPT. 1 JUL-31 DEC 70,
APR 71 47P WEBSTER, J. C. ;
REPT. NO. NELC-TR-1762
PROJ: NELC-R505, SF14-224-001
TASK: 4956

UNCLASSIFIED REPORT

DESCRIPTORS: (*JET PLANE NOISE, *AVIATION MEDICINE), (*HEARING, JET PLANE NOISE), (*VOICE COMMUNICATION SYSTEMS, AUDITORY PERCEPTION), (*FLIGHT DECKS, AIRPLANE NOISE), HAZARDS, AIRCRAFT CARRIERS, INTENSITY, JET FIGHTERS, SPEECH, INTERFERENCE (U)
IDENTIFIERS: NOISE REDUCTION, CVA 63 VESSEL (U)

MEASUREMENTS WERE MADE OF NOISE LEVELS PRODUCED BY FOUR AIRCRAFT DURING PILOT QUALIFICATION EXERCISES ABOARD THE FLIGHT DECK OF USS KITTY HAWK. THESE MEASUREMENTS, ON BOTH THE A- AND C- FREQUENCY WEIGHTING NETWORKS, WERE AUGMENTED BY CALCULATIONS OF SPEECH-INTERFERENCE LEVELS MADE LATER FROM TAPE RECORDINGS. THESE DATA WERE COMPARED TO SIMILAR MEASUREMENTS MADE AT THE NAVAL AIR TEST CENTER AT PATUXENT RIVER, MD., AND INTEPPRETED IN TERMS OF DEAFNESS RISK AND INTERFERENCE WITH SPEECH COMMUNICATIONS. THE LEVELS MEASURED ON THE CARRIER SHOWED LARGE AMOUNTS OF LOW-FREQUENCY ENERGY (AT OCTAVES CENTERED AT 62 AND 125 HZ) NOT PRESENT IN THE DATA TAKEN ASHORE; THIS VARIATION IS ASCRIBED TO THE PRESENCE OF BLAST DEFLECTORS ON THE CARRIER AND TO THE EFFECTS OF STRONG WIND ACROSS THE DECK AND THE MEASURING MICROPHONE IN ITS WIND-SCREEN. THE NOISE LEVELS MEASURED ARE SHOWN TO SEVERELY DEGRADE SPEECH COMMUNICATIONS AND TO PRESENT A RISK OF DEAFNESS TO PERSONNEL. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 729 184 1/3 20/1
TACTICAL AIR COMMAND LANGLEY AFB VA OFFICE OF OPERATIONS ANALYSIS

STOL TRANSPORT PARAMETERS (MILITARY AND COMMERCIAL) WITH SPECIAL EMPHASIS ON NOISE. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
MAY 71 144P STICKLE,GEORGE W. ;BATTEN, BOBBY G. ;
REPT. NO. TAC-OA-TR-70-17

UNCLASSIFIED REPORT

DESCRIPTORS: (*SHORT TAKE-OFF PLANES, *AIRPLANE NOISE), (*TRANSPORT PLANES, AIRPLANE NOISE), LAW, REDUCTION, ATTENUATION, TURBOFAN ENGINES, JET ENGINE NOISE, PROPELLER NOISE, GAS TURBINES, COMMERCIAL PLANES, AIR POLLUTION (U)
IDENTIFIERS: NOISE POLLUTION, NOISE REDUCTION (U)

A SHORT HANDBOOK APPROACH RELATING PHYSICAL AND ENVIRONMENTAL SELECTION PARAMETERS TO STOL TRANSPORT CAPABILITY IS PROVIDED. IT REVIEWS EXISTING LAWS AND REGULATIONS ON TRANSPORT NOISE ABATEMENT. IT REVIEWS THE NOISE FROM TURBOFAN POWERED TRANSPORTS AND DISCUSSES THE FUTURE RESEARCH AND DEVELOPMENT TRENDS AND NEEDS. IT PROVIDES AN INDEPTH ANALYSIS OF FREE TURBINE TURBOPROPELLER NOISE ABATEMENT PROVIDING ENGINEERING FORMULAS, EXAMPLES, AND EXPERIMENTAL DATA. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 730 065 6/19
ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER CHARLOTTESVILLE VA

EFFECT OF AVIATION NOISE ON SOME INDICES OF PROTEIN AND VITAMIN METABOLISM (VLIYANIE AVIATSIONNOGO SHUMA NA NEKOTORYE POKAZATELI BELKOVOGO I VITAMINNOGO OBMENA). (U)

AUG 71 10P UDALOV,YU. F. ;LAPAEV,E. V. ;SYZRANTSEV,YU. K. ;
REPT. NO. FSTC-HT-23-272-71
PROJ: FSTC-T7023012301

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. FROM VOENNO-MEDITSINSKII ZHURNAL (USSR) N7 P61-64.

DESCRIPTORS: (*AIRPLANE NOISE, *STRESS(PHYSIOLOGY)), (*PROTEINS, NOISE), (*VITAMINS, NOISE), METABOLISM, ASTRONAUTICS, AVIATION PERSONNEL, PILOTS, GLUTAMIC ACID, CENTRAL NERVOUS SYSTEM, AMINO ACIDS, HAZARDS, USSR (U)
IDENTIFIERS: TRANSLATIONS (U)

RESEARCH RESULTS IN THIS REPORT POINT TO THE NEED FOR WIDER EMPLOYMENT OF VITAMINS AND GLUTAMIC ACID TO PREVENT THE DAMAGING EFFECTS OF NOISE ON FLYING PERSONNEL AND AIRCRAFT MAINTENANCE PERSONNEL. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 731 092 20/1 1/2
SCHOOL OF AEROSPACE MEDICINE BROOKS AFB TEX

NOISE WITHIN THE F-4E DURING GROUND AND AIRBORNE OPERATIONS. (U)

DESCRIPTIVE NOTE: FINAL REPT. OCT 69-DEC 70, MAY 71 19P GASAWAY, DONALD C. ;
REPT. NO. SAM-TR-71-14
PROJ: AF-7755
TASK: 775508

UNCLASSIFIED REPORT

DESCRIPTORS: (*JET PLANE NOISE, *COCKPITS), (*JET FIGHTERS, JET PLANE NOISE), AVIATION MEDICINE, AIRBORNE, ACOUSTIC PROPERTIES, HEARING, VOICE COMMUNICATION SYSTEMS (U)
IDENTIFIERS: F-4 AIRCRAFT, F-4E AIRCRAFT (U)

NOISE LEVELS ENCOUNTERED WITHIN THE FRONT AND REAR COCKPITS OF THE F-4E (MCDONNELL-DOUGLAS) WERE OBTAINED DURING GROUND AND AIRBORNE OPERATIONS. THE ACOUSTIC FEATURES OF THE NOISE ENVIRONMENT, AS WELL AS FEATURES OF AUDITORY RISK AND VOICED COMMUNICATIONS, ARE DISCUSSED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 731 128 20/1 1/2
SCHOOL OF AEROSPACE MEDICINE BROOKS AFB TEX

NOISE ASSOCIATED WITH T-41A AND T-41C TRAINER AIRCRAFT. (U)

DESCRIPTIVE NOTE: FINAL REPT. NOV 70-MAY 71,
AUG 71 24P GASAWAY,DONALD C. ;
REPT. NO. SAM-TR-71-22
PROJ: AF-7755
TASK: 775508

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIRPLANE NOISE, *TRAINING PLANES), (*COCKPITS, AIRPLANE NOISE), AIRBORNE, SPEECH, INTERFERENCE, VOICE COMMUNICATION SYSTEMS, HEARING, AVIATION MEDICINE (U)
IDENTIFIERS: T-41 AIRCRAFT (U)

ACOUSTIC NOISE MEASUREMENTS WERE OBTAINED WITHIN CESSNA T-41A AND T-41C TRAINER AIRCRAFT DURING VARIOUS PHASES OF GROUND AND AIRBORNE OPERATION. FACTORS CONTRIBUTING TO SPEECH INTERFERENCE AND AUDITORY RISK WERE IDENTIFIED, AND RECOMMENDATIONS ARE PROVIDED RELATIVE TO IMPROVING VOICE COMMUNICATIONS AND REDUCING AUDITORY RISKS. AMBIENT NOISE WITHIN THE T-41A AND T-41C INTERFERES SIGNIFICANTLY WITH SPEECH, BUT THIS PROBLEM CAN BE REDUCED WHEN EARPLUGS, SUCH AS THE V-51R, ARE WORN. THE ATTENUATION PROVIDED BY THE V51R EARPLUGS SHOULD PREVENT TEMPORARY OR PERMANENT NOISE-INDUCED HEARING LOSS.
(AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 731 467 20/1
HUMAN ENGINEERING LABS ABERDEEN PROVING GROUND MD

BASELINE NOISE MEASUREMENTS OF THE OH-58A HELICOPTER. (U)

DESCRIPTIVE NOTE: TECHNICAL NOTE,
APR 71 72P LINCE,DONALD L. ;
REPT. NO. HEL-TN-3-71

UNCLASSIFIED REPORT

DESCRIPTORS: (*NOISE, *HELICOPTERS), MACHINE GUNS, AIRPLANE NOISE, VOICE COMMUNICATION SYSTEMS, INTELLIGIBILITY, HEARING, HAZARDS, STATISTICAL DATA (U)
IDENTIFIERS: XM-27E1 GUNS(7.62-MM), MINIGUNS, M-27 GUNS(7.62-MM), OH-58A AIRCRAFT, GRAPHS(CHARTS), H-58 AIRCRAFT (U)

SOUND MEASUREMENTS WERE TAKEN IN THE OH-58A (KIOWA) HELICOPTER UNDER CONDITIONS OF MAXIMUM PERFORMANCE TAKE OFF AND CLIMB, NORMAL CRUISE, DESCENT AND HOVER BOTH WITH AND WITHOUT SOUNDPROOFING INSTALLED. MEASUREMENTS WERE TAKEN OF THE NOISE PRODUCED BY FIRING THE XM27E1 MINIGUN SYSTEM. INTELLIGIBILITY TESTS OF THE INTERCOM SYSTEM AND ONE RADIO RECEIVER WERE CARRIED OUT. RESULTS ARE PRESENTED AND COMPARED TO HUMAN ENGINEERING LABORATORIES STANDARD S-1-63B. HEARING HAZARD PRESENTED BY WEAPON FIRING IS DISCUSSED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 732 264 1/2 20/1 14/1
ALL AMERICAN ENGINEERING CO WILMINGTON DEL

RESEARCH STUDY OF COST EFFECTIVENESS OF AUXILIARY LAUNCH SYSTEMS APPLICABLE TO COMMERCIAL TRANSPORTS FOR PURPOSES OF NOISE ABATEMENT. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUN 71 270P HIGHLEY,F. M. ;
CONTRACT: DOT-FA70WA-2224
PROJ: FAA-550-004-03H
MONITOR: FAA-EQ 71-1

UNCLASSIFIED REPORT

DESCRIPTORS: (*COMMERCIAL PLANES, *AIRPLANE NOISE), (*TRANSPORT PLANES, *LAUNCHING), (*CATAPULTS, COMMERCIAL PLANES), (*COST EFFECTIVENESS, LAUNCHING), FEASIBILITY STUDIES, REDUCTION, TAKE-OFF, JETS, THRUST AUGMENTATION, EXHAUST GASES (U)
IDENTIFIERS: *NOISE POLLUTION (U)

A COST EFFECTIVENESS STUDY WAS MADE TO DETERMINE THE FEASIBILITY OF REDUCING THE NOISE ASSOCIATED WITH AIRCRAFT TAKING OFF BY APPLYING AUXILIARY LAUNCH POWER DURING AIRCRAFT ACCELERATION ON THE GROUND. AUXILIARY LAUNCH SYSTEM CATEGORIES CONSIDERED WERE REACTION JETS, CATAPULTS, AIRCRAFT EXHAUST AUGMENTATION, AND ACCELERATING VEHICLE SYSTEMS. THE MOST OPTIMUM SYSTEM STUDIED WAS THE STEAM ZIPPER CATAPULT. IT WAS SELECTED ON THE BASIS OF ITS ABILITY TO HANDLE THE FULL RANGE OF AIRCRAFT (75,000 TO 1,500,000 POUND GROSS WEIGHT), ITS HIGH SPEED CAPABILITY (RESULTING IN ABBREVIATED TAKE-OFF TIME AND REDUCED NOISE LEVEL DURATION), SHORTER LAUNCH STROKE (3882 FEET VERSUS 10,000 FEET), EASE OF ACHIEVING BI-DIRECTIONAL CAPABILITY, AND ECONOMY OF OPERATION. OTHER SYSTEMS GIVEN DETAILED EVALUATION WERE THE JET CAR ACCELERATING VEHICLE AND THE STEAM-TURBINE CAPSTAN-DRIVEN CABLE CATAPULT. THE BASIC GOAL OF NOISE LEVEL REDUCTION AT TAKE-OFF IS ACCOMPLISHED TO A SIGNIFICANT DEGREE BY THE SELECTED LAUNCHING TECHNIQUE. COST OF THE LAUNCH SYSTEM DEVELOPMENT PROGRAM, THE AIRPORT INSTALLATION OF A SINGLE PROTOTYPE SYSTEM, AND THE MODIFICATION OF FIVE (5) AIRCRAFT (INCORPORATION OF LAUNCH HOOK(S) AND HIGH-SPEED LANDING GEAR) WOULD BE 25 TO 32 MILLION DOLLARS BASED UPON END SPEEDS OF 155 (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 733 590 20/1 21/5
PRATT AND WHITNEY AIRCRAFT EAST HARTFORD CONN

FAN-COMPRESSOR NOISE: PREDICTION, RESEARCH, AND REDUCTION STUDIES. (U)

DESCRIPTIVE NOTE: FINAL REPT. 9 JAN 69-29 JAN 71,
FEB 71 396P BURDSALL,E. A. URBAN,R. H. ;
REPT. NO. PWA-4154
CONTRACT: DOT-FA69WA-2045
PROJ: FAA-550-001-01H
MONITOR: FAA-RD 71-73

UNCLASSIFIED REPORT

DESCRIPTORS: (*COMPRESSOR NOISE, *TURBOFAN ENGINES), (*FANS, *JET ENGINE NOISE), AIRCRAFT ENGINES, PREDICTIONS, REDUCTION, COMPRESSOR BLADES, BROADBAND, MATHEMATICAL MODELS (U)

A STUDY OF FAN AND COMPRESSOR NOISE WAS UNDERTAKEN FOR THE DEVELOPMENT OF AN ACCURATE PREDICTION SYSTEM, BASED ON THEORETICAL CONCEPTS AND/OR EMPIRICAL DATA, WHICH WOULD ENABLE THE SELECTION OF PROPER ACOUSTICAL DESIGN CHOICES FOR FUTURE ENGINES. EXPERIMENTAL PROGRAMS WERE CONDUCTED USING A VARIETY OF TEST RIGS TO PROVIDE ACOUSTIC DATA AND TO VALIDATE THEORETICAL CONCEPTS. MATHEMATICAL MODELS WERE DEVELOPED FOR EACH TYPE OF FAN NOISE, AND THEIR APPLICABILITY TO ACTUAL ENGINES WAS EVALUATED. ALTHOUGH MORE WORK IS NEEDED TO REDUCE FURTHER THE CONTRIBUTION OF FAN AND COMPRESSOR NOISE TO THE TOTAL NOISE LEVELS OF FUTURE ENGINES, THE MATERIAL PRESENTED REPRESENTS SIGNIFICANT PROGRESS IN THE UNDERSTANDING OF PARTICULAR NOISE-GENERATING MECHANISMS AND THE CAPABILITY TO PREDICT FAN NOISE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 734 812 9/5 17/2.1
ARMY ELECTRONICS COMMAND FORT MONMOUTH N J

ACTIVE FILTERS APPLIED TO HELICOPTER NOISE REDUCTION. (U)

DESCRIPTIVE NOTE: RESEARCH AND DEVELOPMENT TECHNICAL REPT.,
JUL 71 26P TILTON,RICHARD S. ;
REPT. NO. ECOM-3454
PROJ: DA-1-H-662705-A-057
TASK: 1-H-662705-A-05705

UNCLASSIFIED REPORT

DESCRIPTORS: (*ELECTRIC FILTERS, DESIGN), (*AIRPLANE NOISE, REDUCTION), (*HELICOPTERS, *RADIO COMMUNICATION SYSTEMS), ENGINE NOISE, RESONATORS, STABILITY, FREQUENCY, MICROMINIATURIZATION(ELECTRONICS) (U)
IDENTIFIERS: AVIONICS (U)

TWO ACTIVE FILTER RESONATORS OF THE NEGATIVE FEEDBACK TYPE ARE EVALUATED. CLAIMED STABILITY IN LITERATURE AND DESIGN FORMULAS ARE VERIFIED BY AN ACTIVE FILTER BREADBOARD. REQUIREMENTS FOR A PASSIVE L-C FILTER, DEVELOPED FOR AVIONICS EQUIPMENT, WERE USED AS DESIGN OBJECTIVES. THE DESIRED RESPONSE WAS REALIZED USING TWO RESONATOR TYPE A HYBRID VERSION OF THE ACTIVE FILTER WAS DESIGNED AND FABRICATED TO ESTABLISH THAT MICROMINIATURIZATION WAS FEASIBLE WITHOUT ANY DEGRADATION IN PERFORMANCE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 737 926 6/19 20/1
NAVY MEDICAL NEUROPSYCHIATRIC RESEARCH UNIT SAN DIEGO CALIF

AUTONOMIC RESPONSES TO AIRCRAFT NOISE IN DYSLEXIC CHILDREN, (U)

71 9P HUNTER,EDNA J. ;
REPT. NO. NMNRU-71-49
PROJ: MR006.02

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN PSYCHOLOGY IN THE SCHOOLS, V8 N4 P362-367 OCT 71.

DESCRIPTORS: (*READING, RESPONSE(BIOLOGY)), (*AIRCRAFT NOISE, *LEARNING), CHILDREN, PSYCHOPHYSIOLOGY, ATTENTION, AUTONOMIC NERVOUS SYSTEM, PSYCHOLOGY (U)

THE EFFECTS OF NOISE FROM LOW-FLYING AIRCRAFT ON AUTONOMIC RESPONSE PATTERNS WERE ANALYZED IN DYSLEXIC CHILDREN (RDS) AND A GROUP OF MATCHED CONTROLS (CS) DURING A TASK AND A NO-TASK SITUATION. NONREADERS AND CS WERE COMPARED FOR SKIN CONDUCTANCE LEVEL, SKIN POTENTIAL RESPONSE, HEART RATE LEVEL, HEART RATE RESPONSE, FINGER PULSE LEVEL, AND FINGER PULSE RESPONSE. THE RD CHILD APPEARED MORE DISTRACTED BY THE NOISE AND ELICITED SIGNIFICANTLY LARGER NOISE-EVOKED SKIN POTENTIAL AND HEART RATE RESPONSES THAN CS, BUT ONLY WHEN THE NOISE OCCURRED WHILE TASK-ORIENTED. DATA SUPPORT THE HYPOTHESIS THAT DEFECTIVE INHIBITORY MECHANISMS, NOT DEFECTIVE AROUSAL LEVELS, UNDERLIE THE ATTENTIONAL DEFICIT OF THE NONREADER. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 738 511 20/1 12/1
DEUTSCHE FORSCHUNGS- UND VERSUCHSANSTALT FUER LUFT- UND RAUMFAHRT E V AACHEN (WEST GERMANY)

ON THE TRANSMISSION OF SOUND WAVES THROUGH A BLADE ROW, (U)

MAR 71 19P KOCH,W. ;
REPT. NO. DFVLR-SONDERDRUCK-146

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN JNL. OF SOUND AND VIBRATION, V18 N1 P111-128 1971. NO COPIES FURNISHED BY DDC OR NTIS.

DESCRIPTORS: (*SOUND TRANSMISSION, BOUNDARY VALUE PROBLEMS), (*JET ENGINE NOISE, REDUCTION), PARTIAL DIFFERENTIAL EQUATIONS, INTEGRAL EQUATIONS, SUBSONIC FLOW, BLADE AIRFOILS, NUMERICAL ANALYSIS, WEST GERMANY (U)
IDENTIFIERS: *WIENER-HOPF EQUATIONS (U)

THE PROBLEM OF THE TRANSMISSION AND REFLECTION OF PLANE SOUND WAVES INCIDENT UPON A SINGLE CASCADE OF FINITE PLATES IS SOLVED BY MEANS OF THE FINITE WIENER-HOPF TECHNIQUE. THE RESULTS ARE GIVEN IN EXPLICIT FORM CONTAINING AN INFINITE NUMBER OF CONSTANTS. THESE CONSTANTS, WHICH ARE RELATED TO THE ATTENUATED WAVES IN THE DUCT FORMED BY TWO ADJACENT BLADES, HAVE TO BE DETERMINED FROM AN INFINITE SYSTEM OF LINEAR, ALGEBRAIC EQUATIONS. AN ITERATIVE SOLUTION IS POSSIBLE AND CONVERGES RAPIDLY IN MOST CASES. BUT EVEN WITHOUT TAKING THESE ATTENUATED MODES INTO ACCOUNT (EQUIVALENT TO A ZEROTH APPROXIMATION) GOOD AGREEMENT WITH PREVIOUS RESULTS IS OBTAINED. IN THEIR SIMPLEST FORM, THE FINAL FORMULAS REDUCE TO THE ONES GIVE BY MANI AND HORVAY. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 738 627 6/19 20/1
SCHOOL OF AEROSPACE MEDICINE BROOKS AFB TEX

BIOACOUSTIC NOISE PROBLEMS DURING OPERATION OF C-7A CARIBOU AIRCRAFT. (U)

DESCRIPTIVE NOTE: FINAL REPT. JUN-NOV 70,
DEC 71 25P GASAWAY,DONALD C. ;
REPT. NO. SAM-TR-71-12
PROJ: AF-7755
TASK: 775508

REPORT

DESCRIPTORS: (*AIRCRAFT NOISE, *STRESS(PHYSIOLOGY)), (*AVIATION MEDICINE, AIRCRAFT NOISE), AVIATION PERSONNEL, HAZARDS, EXPOSURE(PHYSIOLOGY), THRESHOLDS(PHYSIOLOGY), HEARING (U)

NOISE ENVIRONMENTS WITHIN THE DEHAVILLAND C-7A 'CARIBOU' DURING VARIOUS PHASES OF GROUND AND AIRBORNE OPERATION ARE ILLUSTRATED AND DESCRIBED. NOISE PROFILES ARE PROVIDED TO IDENTIFY AND DESCRIBE EXPOSURES TO NOISE ENCOUNTERED BY UNPROTECTED PERSONNEL AT DIFFERENT OCCUPIED LOCATIONS IN THE C-7A DURING TAKEOFF, CLIMB, AND CRUISE. FEATURES OF AEROMEDICAL SIGNIFICANCE ARE ALSO IDENTIFIED AND DISCUSSED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 739 368 6/19 5/10
MEMPHIS STATE UNIV TENN DEPT OF PSYCHOLOGY

CONVENTIONAL AND HIGH FREQUENCY HEARING OF NAVAL AIRCREWMEN AS A FUNCTION OF NOISE EXPOSURE. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT. MAY 71-MAR 72, APR 72 13P FLETCHER,JOHN L. ;
REPT. NO. HRL/1
CONTRACT: N00014-71-C-0354
PROJ: NR-197-002

UNCLASSIFIED REPORT

DESCRIPTORS: (*HEARING, AIRCRAFT NOISE), (*AIRCRAFT NOISE, FLIGHT CREWS), NOISE, EXPOSURE(PHYSIOLOGY), THRESHOLDS(PHYSIOLOGY), AUDIOMETRY, HAZARDS, PILOTS, JET AIRCRAFT (U)

CONVENTIONAL AND HIGH FREQUENCY AUDIOGRAMS FOR US NAVY PROP, JET, AND ROTARY WING PILOTS WERE OBTAINED AND PLOTTED AS A FUNCTION OF AMOUNT OF FLIGHT TIME LOGGED. LACK OF SUFFICIENT AUDIOGRAMS OF PROP AND ROTARY PILOTS RESTRICTS DISCUSSION OF THE RELATIVE HAZARD TO HEARING OF PROP, ROTARY, AND JET FLIGHT. HOWEVER, FOR JET AIRCREWMEN, LOSSES APPEAR TO BEGIN AT THE HIGHER FREQUENCIES I.E., ABOVE 6 KHZ, AND ERODE WITH CUMULATIVE FLIGHT TIME DOWN TO THE LOWER FREQUENCIES. PERCENT OF PERSONS DETECTING THE HIGH FREQUENCY SIGNALS IS A MORE PRECISE INDEX OF THE PROGRESSION OF HEARING LOSS THAN IS MEAN HEARING LEVEL, PRIMARILY BECAUSE OF AN ARTIFACT IN SCORING AUDIOGRAMS. DATA COLLECTION OF AIRCREW CANDIDATES PRE-TRAINING, DURING TRAINING, AND POST-PRIMARY HEARING ARE CONCURRENTLY BEING COLLECTED BY US NAVY AEROSPACE MEDICAL RESEARCH INSTITUTE (NAMI) PERSONNEL AT PENSACOLA NAS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 739 870 20/1 1/3
HYDROSPACE RESEARCH CORP SAN DIEGO CALIF SAN DIEGO DIV

MEASUREMENT AND ANALYSIS OF NOISE FROM FOUR AIRCRAFT IN LEVEL FLIGHT (727, KC-135, 707-320B AND DC-9). (U)

DESCRIPTIVE NOTE: FINAL REPT. MAY-SEP 71,
SEP 71 60P TANNER,CAROLE S. ;
REPT. NO. HRC-TR-S-209
CONTRACT: DOT-FA71WA-2555
MONITOR: FAA-RD 71-83

UNCLASSIFIED REPORT

DESCRIPTORS: (*JET PLANE NOISE, MEASUREMENT), (*AIRCRAFT LANDINGS, JET PLANE NOISE), COMMERCIAL PLANES, WEATHER, HUMIDITY, TEMPERATURE, WIND, ACOUSTIC DETECTORS, TANKER PLANES (U)
IDENTIFIERS: ATMOSPHERES, ATTENUATION, BOEING 727 AIRCRAFT, BOEING 707 AIRCRAFT, KC-135 AIRCRAFT, C-135 AIRCRAFT, DC-9 AIRCRAFT (U)

MEASUREMENTS OF NOISE FROM AIRCRAFT LEVEL FLYOVERS ARE PRESENTED IN THE FORM OF EFFECTIVE PERCEIVED NOISE LEVEL (EPNL) AS A FUNCTION OF SLANT RANGE AT THE CLOSEST POINT OF APPROACH. FOUR AIRCRAFT WERE INVESTIGATED (727, KC-135, 707-320B, AND DC-9) AND THE EFFORT INVOLVED ACQUISITION OF ACOUSTICAL, METEOROLOGICAL, AIRCRAFT TRACKING, AND AIRCRAFT OPERATIONAL DATA. MICROPHONES WERE LOCATED FOUR FEET ABOVE THE GROUND IN AN ARRAY NORMAL TO THE FLIGHT TRACK. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 739 987 20/1
HYDROSPACE RESEARCH CORP SAN DIEGO CALIF SAN DIEGO DIV

EXPERIMENTAL ATMOSPHERIC ABSORPTION COEFFICIENTS. (U)

DESCRIPTIVE NOTE: FINAL REPT. JUN 70-NOV 71,
NOV 71 76P TANNER,CAROLE S. ;
CONTRACT: DOT-FA70WA-2374
PROJ: FAA-550-002-07H
MONITOR: FAA-RD 71-99

UNCLASSIFIED REPORT

DESCRIPTORS: (*JET PLANE NOISE, ATTENUATION), ABSORPTION, METEOROLOGICAL PHENOMENA, POWER SPECTRA, TURBOJET ENGINES, EXPERIMENTAL DATA, JET TRAINING PLANES, OREGON (U)
IDENTIFIERS: NOISE REDUCTION, ABSORPTION(PHYSICAL), SOUND, ATMOSPHERES, ATTENUATION, J-33 ENGINES, T-33A AIRCRAFT, T-33 AIRCRAFT (U)

THE OBJECTIVE OF THIS WORK WAS TO ACQUIRE EXPERIMENTAL DATA ON ATMOSPHERIC SOUND ABSORPTION AND SIDELINE NOISE PROPAGATION FOR THE PURPOSE OF UPDATING AND REFINING AIRCRAFT NOISE MEASUREMENT STANDARDS AND IMPROVING AIRCRAFT NOISE PREDICTION TECHNIQUES. THE EFFORT INVOLVED ACQUISITION OF ACOUSTICAL, METEOROLOGICAL, AIRCRAFT TRACKING, AND AIRCRAFT OPERATIONAL DATA. THE SOUND SOURCE WAS A LOCKHEED T-33A AIRCRAFT, PROPELLED BY A SINGLE ALLISON J33-A-35 TURBOJET ENGINE, OPERATING AT CONSTANT THRUST IN LEVEL FLIGHT. MICROPHONES WERE LOCATED NEAR THE GROUND IN AN ARRAY NORMAL TO THE FLIGHT TRACK. ALL TESTS WERE CONDUCTED AT THE PENDLETON MUNICIPAL AIRPORT, PENDLETON, OREGON DURING TWO SEPARATE TIME PERIODS IN JULY AND SEPTEMBER 1970. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 740 393 20/1 13/2
BOLT BERANEK AND NEWMAN INC CAMBRIDGE MASS

NOISE FROM AIRCRAFT OPERATIONS AT MIRAMAR NAVAL AIR STATION, CALIFORNIA AND LAND USE INTERPRETATIONS. (U)

DEC 71 81P
REPT. NO. BBN-2098
CONTRACT: N62474-71-C-4781

UNCLASSIFIED REPORT

DESCRIPTORS: (*JET PLANE NOISE, NAVAL AIR STATIONS), (*URBAN PLANNING, *CALIFORNIA), AUDITORY PERCEPTION, NAVAL OPERATIONS, STRESS(PSYCHOLOGY), TAKEOFF, AIRCRAFT LANDINGS (U)
IDENTIFIERS: *LAND USE (U)

THE PURPOSE OF THE REPORT IS TO DEFINE THE NOISE ENVIRONMENT DUE TO MILITARY AIRCRAFT OPERATIONS IN THE VICINITY OF MIRAMAR NAVAL AIR STATION. THE NOISE ENVIRONMENT IS DEPICTED BY MEANS OF SEVERAL NOISE CONTOURS WHICH ARE INTERPRETED IN TERMS OF EXPECTED IMPACT ON LAND USAGE. THE MAJOR PURPOSE OF THE STUDY IS TO PROVIDE INTERPRETATIONS OF THE AIRCRAFT NOISE AS AN AID IN THE COMPATIBLE DEVELOPMENT OF LAND SURROUNDING MIRAMAR NAVAL AIR STATION. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 740 513 21/5 20/1
GENERAL ELECTRIC CO CINCINNATI OHIO AIRCRAFT ENGINE GROUP

FAN/COMPRESSOR NOISE RESEARCH. VOLUME I. DETAILED DISCUSSION. (U)

DESCRIPTIVE NOTE: FINAL REPT. JUN 68-OCT 71, OCT 71 322P BENZAKEIN,M. J. ;HOCHHEISER, R. M. ;CLAES,H. P. ;KAZIN,S. B. ;COWARD, W. E. ;
MONITOR: FAA-RD 71-85-VOL-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-740 514.

DESCRIPTORS: (*AXIAL FLOW COMPRESSORS, *JET ENGINE NOISE), (*TURBOFAN ENGINES, AXIAL FLOW COMPRESSORS), INLET GUIDE VANES, COMPRESSOR PARTS, TURBINE PARTS, NOISE, VORTICES, WAKE, INTERACTIONS, WIND TUNNEL MODELS, SOUND PITCH, MATHEMATICAL MODELS, ACOUSTICS (U)
IDENTIFIERS: NOISE TRANSMISSION, NOISE REDUCTION, NOISE POLLUTION (U)

MECHANISMS OF FAN/COMPRESSOR NOISE GENERATION, TRANSMISSION, RADIATION AND PROPAGATION WERE PHYSICALLY DEFINED AND MATHEMATICALLY DESCRIBED IN TERMS OF FUNCTIONAL RELATIONSHIPS BETWEEN ACOUSTIC, GEOMETRIC AND AERODYNAMIC PARAMETERS. BASED ON THESE MECHANISMS, ANALYTICAL AND SEMI-EMPIRICAL PREDICTIONS OF PURE TONE, BROADBAND AND MULTIPLE PURE TONE FAN/COMPRESSOR NOISE WERE ESTABLISHED IN TERMS OF SOUND POWER SPECTRA, DIRECTIVITY INDICES AND THE RESULTANT SOUND PRESSURE SPECTRA. TEST DATA ON A VARIETY OF FAN AND COMPRESSOR VEHICLES WERE USED TO VERIFY THE BASIC PREDICTION TECHNIQUES AND TO STUDY THE IMPACT OF SPECIFIC DESIGN PARAMETERS UPON FAN/COMPRESSOR NOISE, INCLUDING VANE-BLADE SPACING, VANE AND BLADE NUMBERS, TIP SPEED, BLADE LOADING, ROTOR SWEEP, INLET GUIDE VANES AND VANE LEAN. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 740 514 21/5 20/1
GENERAL ELECTRIC CO CINCINNATI OHIO AIRCRAFT ENGINE GROUP

FAN/COMPRESSOR NOISE RESEARCH. VOLUME II. DETAILED DISCUSSION. (U)

DESCRIPTIVE NOTE: FINAL REPT. JUN 68-OCT 71, OCT 71 352P BENZAKEIN,M. J. ;HOCHHEISER, R. M. ;CLAES,H. P. ;KAZIN,S. B. ;COWARD, W. E. ;
CONTRACT: DOT-FA68WA-1960
MONITOR: FAA-RD 71-85-VOL-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 1, AD-740 513, AND VOLUME 3, AD-740 515.

DESCRIPTORS: (*AXIAL FLOW COMPRESSORS, *JET ENGINE NOISE), (*TURBOFAN ENGINES, AXIAL FLOW COMPRESSORS), INLET GUIDE VANES, COMPRESSOR PARTS, TURBINE PARTS, NOISE, VORTICES, WAKE, INTERACTIONS, CAPTIVE TESTS, SOUND PITCH, ACOUSTICS (U)
IDENTIFIERS: NOISE TRANSMISSION, NOISE REDUCTION, NOISE POLLUTION (U)

TEST DATA ON A VARIETY OF FAN AND COMPRESSOR VEHICLES WERE USED TO VERIFY THE BASIC PREDICTION TECHNIQUES AND TO STUDY THE IMPACT OF SPECIFIC DESIGN PARAMETERS UPON FAN/COMPRESSOR NOISE, INCLUDING VANE-BLADE SPACING, VANE AND BLADE NUMBERS, TIP SPEED, BLADE LOADING, ROTOR SWEEP, INLET GUIDE VANES AND VANE LEAN. EFFECTS OF REFRACTION ON TONE DIRECTIVITIES WERE MEASURED AND COMPARED WITH EXPECTATIONS. PROPAGATION OF ACOUSTIC WAVES WERE STUDIED, WITH SPECIFIC EXPERIMENTS CONDUCTED TO INVESTIGATE GROUND REFLECTION PHASE FACTOR AND ATMOSPHERIC ABSORPTION AT HIGH FREQUENCIES. THE PREDICTION SYSTEMS WERE SUMMARIZED IN TERMS OF FLOW CHARTS AND TABLES. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 740 515 21/5 20/1
GENERAL ELECTRIC CO CINCINNATI OHIO AIRCRAFT ENGINE GROUP

FAN/COMPRESSOR NOISE RESEARCH. VOLUME III. COMPILATION OF TEST DATA. (U)

DESCRIPTIVE NOTE: FINAL REPT. JUN 68-OCT 71,
OCT 71 277P BENZAKEIN,M. J. ;HOCHHEISER, R. M. ;CLAFS,H. P. ;KAZIN,S. B. ;COWARD, W. E. ;
CONTRACT: DOT-FA68WA-1960
MONITOR: FAA-RD 71-85-VOL-3

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-740 514, AND VOLUME 4, AD-740 516.

DESCRIPTORS: (*AXIAL FLOW COMPRESSORS, *JET ENGINE NOISE), (*TURBOFAN ENGINES, AXIAL FLOW COMPRESSORS), INLET GUIDE VANES, COMPRESSOR PARTS, TURBINE PARTS, NOISE, VORTICES, WAKE, INTERACTIONS, SOUND PITCH, ACOUSTICS, DATA PROCESSING (U)
IDENTIFIERS: NOISE REDUCTION, NOISE POLLUTION, NOISE TRANSMISSION (U)

APPENDICES A-C CONTAIN THE PROCESSED DATA FROM EACH TEST VEHICLE CONFIGURATION, IN THE FORM OF THE COMPUTER PRINT-OUT SHEET. THE ACOUSTIC DATA PRESENTED ON THESE SHEETS CONSISTS OF 1/3 OCTAVE SOUND PRESSURE LEVEL AT EACH ANGLE AND 1/3 OCTAVE SOUND POWER LEVEL FOR FREQUENCIES OF 50 TO 10K HZ, OVERALL SOUND PRESSURE LEVEL AND PERCEIVED NOISE LEVEL AT EACH ANGLE, OVERALL SOUND POWER LEVEL, AND THE DIRECTIVITY INDEX. A DETAILED EXPLANATION OF THE TERMINOLOGY IS PRESENTED IN THE FOLLOWING PAGES. ALL DATA HAS BEEN CORRECTED FOR STANDARD DAY ATMOSPHERIC ABSORPTION CONDITIONS. THE DATA FOR D/V I (APPENDIX A) IS AT A 250 FOOT RADIUS ONLY; THE DATA FOR D/V II AND D/V III (APPENDICES B-C) IS AT BOTH A 250 FOOT AND A 150 FOOT RADIUS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 740 516 21/5 20/1
GENERAL ELECTRIC CO CINCINNATI OHIO AIRCRAFT ENGINE GROUP

FAN/COMPRESSOR NOISE RESEARCH. VOLUME IV. COMPILATION OF TEST DATA. (U)

DESCRIPTIVE NOTE: FINAL REPT. JUN 68-OCT 71,
OCT 71 264P BENZAKEIN,M. J. ;HOCHHEISER, R. M. ;CLAES ,H. P. ;KAZIN,S. B. ;COWARD, W. E. ;
CONTRACT: DOT-FA68WA-1960
MONITOR: FAA-RD 71-85-VOL-4

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 3, AD-740 515.

DESCRIPTORS: (*AXIAL FLOW COMPRESSORS, *JET ENGINE NOISE), (*TURBOFAN ENGINES, AXIAL FLOW COMPRESSORS), INLET GUIDE VANES, COMPRESSOR PARTS, TURBINE PARTS, NOISE, VORTICES, WAKE, INTERACTIONS, SOUND PITCH, ACOUSTICS, DATA PROCESSING (U)
IDENTIFIERS: NOISE TRANSMISSION, NOISE POLLUTION, NOISE REDUCTION (U)

APPENDICES D-E CONTAIN THE PROCESSED DATA FROM EACH TEST VEHICLE CONFIGURATION, IN THE FORM OF THE COMPUTER PRINT-OUT SHEET. THE ACOUSTIC DATA PRESENTED ON THESE SHEETS, CONSISTS OF 1/3 OCTAVE SOUND PRESSURE LEVEL AT EACH ANGLE AND 1/3 OCTAVE SOUND POWER LEVEL FOR FREQUENCIES OF 50 TO 10K HZ, OVERALL SOUND PRESSURE LEVEL AND PERCEIVED NOISE LEVEL AT EACH ANGLE, OVERALL SOUND POWER LEVEL, AND THE DIRECTIVITY INDEX. A DETAILED EXPLANATION OF THE TERMINOLOGY IS PRESENTED IN THE FOLLOWING PAGES. ALL DATA HAS BEEN CORRECTED FOR STANDARD DAY ATMOSPHERIC ABSORPTION CONDITIONS. THE DATA FOR D/V III (APPENDICES D-E) IS AT BOTH A 250 FOOT AND A 150 FOOT RADIUS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 740 563 20/1 1/2
HYDROSPACE RESEARCH CORP SAN DIEGO CALIF SAN DIEGO DIV

MEASUREMENT AND ANALYSIS OF NOISE FROM FOUR AIRCRAFT DURING APPROACH AND DEPARTURE OPERATIONS (727, KC-135, 707-320B, AND DC-9). (U)

DESCRIPTIVE NOTE: FINAL REPT. MAR-SEP 71,
SEP 71 185P TANNER,CAROLE S. ;
REPT. NO. HRC-TR-S-208
CONTRACT: DOT-FA71WA-2555
PROJ: FAA-550-002-03H
MONITOR: FAA-RD 71-84

UNCLASSIFIED REPORT

DESCRIPTORS: (*JET PLANE NOISE, *APPROACH), (*TAKEOFF, JET PLANE NOISE), JET TRANSPORT PLANES, COMMERCIAL PLANES, MEASUREMENT, STATISTICAL ANALYSIS (U)
IDENTIFIERS: BOEING 727 AIRCRAFT, BOEING 707 AIRCRAFT, KC-135 AIRCRAFT, C-135 AIRCRAFT, DC-9 AIRCRAFT (U)

THE OBJECTIVE OF THIS WORK WAS TO MEASURE, EVALUATE, AND IDENTIFY THE NOISE LEVELS ALONG THE FLIGHT TRACK GENERATED BY 727, KC-135, 707-320B, AND DC-9 AIRCRAFT. THE AIRCRAFT WERE DIRECTED TO OPERATE IN A WIDE VARIETY OF TAKEOFF AND APPROACH PROCEDURES. THE EFFORT INVOLVED ACQUISITION OF ACOUSTICAL, METEOROLOGICAL, AIRCRAFT TRACKING, AND AIRCRAFT OPERATIONAL DATA. MICROPHONES WERE LOCATED FOUR FEET ABOVE THE GROUND IN AN ARRAY PARALLEL TO THE FLIGHT TRACK ALONG THE EXTENDED RUNWAY CENTERLINE UP TO 10 NAUTICAL MILES FROM THE RUNWAY THRESHOLD. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 20M09

AD- 740 642 20/1 1/2
BOLT BERANEK AND NEWMAN INC CANOGA PARK CALIF

NOISE MEASUREMENTS DURING APPRAOCH OPERATIONS ON RUNWAY 21R AT DETROIT METROPOLITAN AIRPORT. (U)

DESCRIPTIVE NOTE: FINAL REPT. MAY-DEC 71,
DEC 71 90P BISHOP,DWIGHT E. ;
REPT. NO. BBN-2203
CONTRACT: DOT-FA71WA-2589
PROJ: FAA-202-812-038
MONITOR: FAA-RD 71-117

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIRPORTS, *JET PLANE NOISE), (*AIRCRAFT LANDINGS, JET PLANE NOISE), RUNWAYS, AUDITORY PERCEPTION, TABLES(DATA), MICHIGAN (U)
IDENTIFIERS: ACOUSTIC MEASUREMENT, DETROIT(MICHIGAN) (U)

AIRCRAFT NOISE AND DISTANCE DATA WERE ACQUIRED AT THREE LOCATIONS UNDER THE INSTRUMENT LANDING SYSTEM LOCALIZER PATH TO RUNWAY 21R AT DETROIT METROPOLITAN AIRPORT PRECEDING AND DURING A THREE PHASE 'FIELD EVALUATION OF 3,000 FT. GLIDE SLOPE INTERCEPT PROGRAM' CONDUCTED BY THE FAA. DURING TWO TEN-DAY PERIODS OF MEASUREMENTS, NOISE OF ALL IFR APPROACHES ON RUNWAY 21R BETWEEN THE HOURS OF 0600 AND 2400 WERE RECORDED. EFFECTIVE PERCEIVED NOISE LEVELS (EPNL) AND OTHER NOISE MEASURES WERE OBTAINED FOR MUCH OF THE RECORDED DATA; NFF VALUES WERE THEN CALCULATED FROM THE EPNL DATA. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 741 149 20/1 5/10
HYDROSPACE RESEARCH CORP SAN DIEGO CALIF

ANALYSIS OF OPERATIONAL NOISE MEASUREMENTS IN TERMS OF SELECTED HUMAN RESPONSE NOISE EVALUATION MEASURES. (U)

DESCRIPTIVE NOTE: FINAL REPT. MAR-DEC 71,
DEC 71 68P TANNER,CAROLE S. ;GLASS,
RAY E. ;
REPT. NO. HRC-TR-S-211
CONTRACT: DOT-FA71WA-2555
MONITOR: FAA-RD 71-112

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIRCRAFT NOISE, *AUDITORY PERCEPTION), MEASUREMENT, JET TRANSPORT PLANES, TAKEOFF, APPROACH, JET PLANE NOISE (U)
IDENTIFIERS: BOEING 707 AIRCRAFT, BOEING 727 AIRCRAFT, KC-135 AIRCRAFT, C-135 AIRCRAFT, DC-9 AIRCRAFT (U)

A COMPARISON BETWEEN COMMON AIRCRAFT NOISE MEASURES SUCH AS COMPOSITE PERCEIVED NOISE LEVEL (PNLC), MAXIMUM PERCEIVED NOISE LEVEL (PNLM), A-WEIGHTED LEVEL, D-WEIGHTED LEVEL AND NOISE EXPOSURE LEVEL (NEL), AND THE CORRESPONDING EFFECTIVE PERCEIVED NOISE LEVEL (EPNL) WAS MADE. DIFFERENCES BETWEEN EPNL AND EACH OF THESE MEASURES WERE COMPUTED FOR THE 727, KC-135, 707-320B, AND DC-9 AIRCRAFT FOR THREE TAKE-OFF AND FOUR APPROACH OPERATIONAL PROCEDURES. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 741 248 20/1
HYDROSPACE RESEARCH CORP SAN DIEGO CALIF SAN DIEGO DIV

MEASUREMENT AND ANALYSIS OF NOISE FROM SEVENTEEN AIRCRAFT IN LEVEL FLIGHT (MILITARY, BUSINESS JET, AND GENERAL AVIATION). (U)

DESCRIPTIVE NOTE: FINAL REPT. JUN 70-NOV 71,
NOV 71 67P TANNER,CAROLE S. ;
REPT. NO. HRC-TR-S-212
CONTRACT: DOT-FA70WA-2374
PROJ: FAA-55D-002-074
MONITOR: FAA-RD 71-98

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIRCRAFT NOISE, MEASUREMENT), JET PLANE NOISE, AUDITORY PERCEPTION, STATISTICAL ANALYSIS, METEOROLOGICAL PHENOMENA (U)
IDENTIFIERS: GENERAL AVIATION AIRCRAFT (U)

MEASUREMENTS OF NOISE FROM AIRCRAFT LEVEL FLYOVERS ARE PRESENTED IN THE FORM OF EFFECTIVE PERCEIVED NOISE LEVEL (EPNL) AS A FUNCTION OF SLANT RANGE AT THE CLOSEST POINT OF APPROACH. SEVENTEEN AIRCRAFT WERE INVESTIGATED (VARIOUS MILITARY, BUSINESS JETS, AND GENERAL AVIATION TYPES) AND THE EFFORT INVOLVED ACQUISITION OF ACOUSTICAL, METEOROLOGICAL, AIRCRAFT TRACKING, AND AIRCRAFT OPERATIONAL DATA. MICROPHONES WERE LOCATED NEAR THE GROUND IN AN ARRAY NORMAL TO THE FLIGHT TRACK. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 743 095 20/1 1/5
IIT RESEARCH INST CHICAGO ILL

STUDY OF NOISE IN AIR ROUTE TRAFFIC CONTROL CENTER, FLIGHT SERVICE STATION, AIR TRAFFIC CONTROL TOWER AND REMOTE FACILITIES. (U)

DESCRIPTIVE NOTE: FINAL RPT. ON PHASE I, 18 MAY-18 NOV 71,
DEC 71 56P SEMMELINK,A. ;CLINCH,J. M.
;
CONTRACT: DOT-FA71W-2587
MONITOR: FAA-RD 72-47

UNCLASSIFIED REPORT

DESCRIPTORS: (*TERMINAL FLIGHT FACILITIES, *AIRCRAFT NOISE), PSYCHOACOUSTICS, CONTROL, AIR TRAFFIC CONTROLLERS, PSYCHOLOGY, PERFORMANCE(HUMAN), STANDARDS (U)
IDENTIFIERS: *NOISE POLLUTION, *NOISE REDUCTION (U)

THE REPORT DESCRIBES THE DEVELOPMENT OF A NOISE STANDARD FOR PERMISSIBLE NOISE LEVELS IN FAA AIR TRAFFIC CONTROL AND NAVIGATIONAL FACILITIES. THE CONTENTS OF THE REPORT INCLUDE NOISE DEFINITIONS, THEORY OF SOUND, SOUND MEASURING INSTRUMENTATION, NOISE SURVEYS, REFERENCE PUBLICATIONS, AND NOISE CRITERIA. CRITERIA ARE GIVEN FOR NOISE ENVIRONMENTS WHICH PERMIT SAFE AND SATISFACTORY PERFORMANCE OF TASKS IN THE FOLLOWING FACILITIES: TRAFFIC CONTROL CENTERS, INCLUDING IMPORTANT COMMUNICATION AREAS; AIR TRAFFIC CONTROL TOWER CABS; FLIGHT SERVICE STATIONS AND REMOTE FACILITIES. CRITERIA FOR EACH OF THESE FACILITIES ARE DESCRIBED AND JUSTIFICATIONS FOR THE SELECTION OF NOISE CRITERIA ARE GIVEN. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 744 590 20/1
NAVAL POSTGRADUATE SCHOOL MONTEREY CALIF

FREQUENCY DEPENDENCE OF SOUND TRANSMITTED FROM AN AIRBORNE SOURCE INTO THE OCEAN, (U)

MAY 72 53P MEDWIN,HERMAN ;HELBIG,R. A. ;
REPT. NO. NPS-61MD72051A

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIRPLANE ENGINE NOISE, *UNDERWATER SOUND), HELICOPTERS, AIRCRAFT NOISE, SOUND TRANSMISSION, OCEAN WAVES, HYDROPHONES, SURFACE ROUGHNESS (U)
IDENTIFIERS: SH-3 AIRCRAFT, HELMHOLTZ EQUATION (U)

THE PREDICTED DEPENDENCE OF SOUND TRANSMISSION ON THE STATISTICS OF THE RANDOMLY-ROUGH INTERFACE BETWEEN DISSIMILAR FLUIDS HAS BEEN STUDIED BY USE OF THE HELMHOLTZ INTEGRAL. THE PREDICTIONS HAVE BEEN VERIFIED FOR RADIATION FROM A HELICOPTER HOVERING, AND SLOWLY MOVING, OVER THE SEA, FOR FREQUENCIES TO 1000 HZ FOR A WIDE RANGE OF SLOWLY MOVING, OVER THE SEA, FOR FREQUENCIES TO 1000 HZ FOR A WIDE RANGE OF SURFACE ACOUSTICAL ROUGHNESSES. THE ROUGHNESS PARAMETERS ARE THE RMS HEIGHT OF THE SURFACE, PROPAGATION CONSTANT, SPEED OF PROPAGATION AND ANGLE WITH THE NORMAL, RESPECTIVELY. THE TRANSMISSION CHANGE OF SOUND PRESSURE AS A FUNCTION OF FREQUENCY IS PRESENTED FOR SEVERAL CONDITIONS OF AN SH3-D HELICOPTER HOVERING AND FLYING OVER OR NEAR AN ARRAY OF MICROPHONE AND SONOBUOY HYDROPHONES. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOM09

AD- 744 828 20/1 6/19
AEROSPACE MEDICAL RESEARCH LAB WRIGHT-PATTERSON AFB OHIO

NOISE AND SPEECH LEVELS ASSOCIATED WITH THE F-111A PREP AREA, MCCLELLAN AFB. (U)

DESCRIPTIVE NOTE: FINAL REPT. MAY-NOV 70,
MAY 72 38P SOMMER,HENRY C. ;ROSE,
JUSTUS F. , JR;
REPT. NO. AMRL-TR-72-2
PROJ: AF-7231
TASK: 723103, 723104

UNCLASSIFIED REPORT

DESCRIPTORS: (*JET PLANE NOISE, *AUDITORY PERCEPTION), (*SPEECH, JET PLANE NOISE), EXPOSURE(PHYSIOLOGY), JET FIGHTERS, EAR PROTECTORS (U)
IDENTIFIERS: F-111 AIRCRAFT, F-111A AIRCRAFT (U)

THE PURPOSE OF THE STUDY WAS TO MEASURE THE AMBIENT NOISE ENVIRONMENT AND SPEECH RECEPTION LEVELS ASSOCIATED WITH THE F-111A FLIGHT PREP AREA AT MCCLELLAN AFB, CALIFORNIA; TO MEASURE NOISE ATTENUATION CHARACTERISTICS OF SEVERAL EAR PROTECTION DEVICES CONTEMPLATED FOR USE IN THE AMBIENT NOISE; AND TO DETERMINE MAXIMUM PERMISSIBLE HUMAN EXPOSURE DURATIONS BASED ON THESE DATA. THE RESULTS SHOW THAT A H-133 (STANDARD AF COMMUNICATION HEADSET, MICROPHONE) IN COMBINATION WITH A CUSTOM MOLDED INSERT COMMUNICATION EARPLUG WOULD PERMIT PERSONNEL TO BE EXPOSED UP TO 8 HOURS CONTINUOUSLY AT THE 70% AND 85% ENGINE POWER SETTINGS. THESE TIME LIMITS DECREASE TO 36 MINUTES PER 8 HOUR DAY DURING AFTERBURNER ZONE 5. EVEN IN THE HIGHEST NOISE LEVELS, COMMUNICATION CAPABILITY WAS SATISFACTORY WITH THIS EARPLUG/HEADSET COMBINATION. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 747 129 6/19 20/1
ENVIRONMENTAL ACOUSTICS CHATSWORTH CALIF

EVALUATION OF HEARING LEVELS OF RESIDENTS LIVING NEAR A MAJOR AIRPORT. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUN 72 99P PARNELL,J. E. ;NAGEL,D. C. ;COHEN,A. ;
CONTRACT: DOT-FA70-WAI-200, PHS-71-0108
MONITOR: FAA-RD 72-72

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIRCRAFT NOISE, *AIRPORTS), (*HEARING, AIRCRAFT NOISE), THRESHOLDS(PHYSIOLOGY), EXPOSURE(PHYSIOLOGY), URBAN AREAS, ANALYSIS OF VARIANCE, AUDITORY ACUITY (U)
IDENTIFIERS: LOS ANGELES INTERNATIONAL AIRPORT, *NOISE POLLUTION (U)

AUDIOGRAMS AND OTHER DATA RELATED TO EAR CONDITIONS AND NOISE EXPOSURE WERE OBTAINED FROM RESIDENTS DRAWN FROM TWO NEIGHBORHOODS IN THE GREATER LOS ANGELES AREA. ONE COMMUNITY BORDERED LOS ANGELES INTERNATIONAL AIRPORT AND HAD BEEN SUBJECTED OVER THE YEARS TO FREQUENT TAKEOFF NOISE OF HIGH LEVEL. MAXIMUM RMS MEASUREMENTS OF THESE AIRCRAFT SOUNDS OUTDOORS IN THIS NEIGHBORHOOD RANGED FROM 76 TO 101 DBA WITH A MEDIAN OF 88 DBA. THE SECOND COMMUNITY WAS SIMILAR TO THE AIRPORT ONE IN DEMOGRAPHY BUT FREE OF SIGNIFICANT AIRCRAFT NOISE INTRUSION. NOISE LEVELS HERE RARELY EXCEEDED 60 DBA AND COMMONLY WERE 50 DBA OR LESS. BOTH GROUPS DISPLAYED AVERAGE HEARING LEVELS AS GOOD AND AT CERTAIN FREQUENCIES SLIGHTLY BETTER THAN ESTIMATES OBTAINED FROM THE NATIONAL HEALTH SURVEY OF 1960-1962. THE OVERALL FINDINGS DID NOT MAKE IT POSSIBLE TO DRAW FIRM CONCLUSIONS ABOUT COMMUNITY AIRCRAFT NOISE EXPOSURE AS A CAUSE OF THE APPARENT DIFFERENCES IN HEARING LEVELS BETWEEN THE TWO GROUPS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 747 774 20/1 1/3
GENERAL ELECTRIC CO CINCINNATI OHIO

SUPERSONIC JET EXHAUST NOISE. (U)

DESCRIPTIVE NOTE: FINAL REPT. MAY 71-MAY 72,
AUG 72 794P BENZAKEIN,MEYER J. ;KNOTT,
PAUL R. ;
CONTRACT: F33615-71-C-1662
PROJ: AF-3066
TASK: 306614
MONITOR: AFAPL TR-72-52

UNCLASSIFIED REPORT

DESCRIPTORS: (*SUPERSONIC AIRCRAFT, *JET PLANE NOISE), ACOUSTICS, CONICAL NOZZLES, FLOW FIELDS, JET FLAMES, TURBULENCE, ACOUSTIC IMPEDANCE, MATHEMATICAL ANALYSIS(U)
IDENTIFIERS: NOISE POLLUTION, *NOISE REDUCTION, PLUMES (U)

THE REPORT SUMMARIZES THE RESULTS OBTAINED AT GENERAL ELECTRIC DURING THE FIRST PHASE OF THE AIR FORCE SUPERSONIC EXHAUST NOISE - VELOCITY MODEL PROGRAM. THE OVERALL OBJECTIVE OF THE PROGRAM IS TO DEVELOP THE TECHNOLOGY TO SIGNIFICANTLY REDUCE SUPERSONIC AIRCRAFT PROPULSION SYSTEM NOISE WITH MINIMUM ASSOCIATED PERFORMANCE AND WEIGHT PENALTIES. TO FULFILL THAT OBJECTIVE, RESEARCH IS BEING CARRIED OUT TO DEVELOP THE EXPERIMENTAL TECHNIQUES AND THE NECESSARY THEORY TO REVEAL THE BASIC MECHANISMS OF JET GENERATED NOISE THROUGH THE RANGE OF VELOCITIES AND TEMPERATURES TYPICAL OF PRESENT AND FUTURE MILITARY AND COMMERCIAL SUPERSONIC AIRCRAFT PROPULSION SYSTEMS. A COMPREHENSIVE AERODYNAMIC ANALYTICAL MODEL DESCRIBING THE FLOW MECHANISMS IN SUPERSONIC JETS IS PRESENTED AND COMPARED WITH EXPERIMENTAL DATA. A LARGE NUMBER OF THEORETICAL MODELS DESCRIBING SUPERSONIC FAR FIELD JET NOISE ARE EVALUATED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 748 039 20/1 21/5 1/3
WYLE LABS EL SEGUNDO CALIF

FAR FIELD NOISE GENERATION BY COAXIAL FLOW JET EXHAUSTS. VOLUME II. COMPILATION OF TEST RESULTS. (U)

DESCRIPTIVE NOTE: FINAL REPT. MAR 68-NOV 71,
NOV 71 329P ELDRED,KENNETH M. ;
CONTRACT: DOT-FA68WA-1889
PROJ: FAA-550-001-05H
MONITOR: FAA-RD 71-101-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED NOV 71, AD-743 707.

DESCRIPTORS: (*EXHAUST GASES, *JET ENGINE NOISE), (*TURBOJET ENGINES, NOZZLE GAS FLOW), JET MIXING FLOW, SECONDARY FLOW, NOZZLE AREA RATIO, TEMPERATURE, PRESSURE, VELOCITY, STATISTICAL DATA, THRESHOLDS(PSHYSIOLOGY) (U)
IDENTIFIERS: COAXIAL JETS (U)

THE REPORT IS VOLUME 2 OF A TWO-VOLUME REPORT ON AN EMPIRICALLY-DERIVED NOISE PREDICTION METHOD FOR COAXIAL JETS. VOLUME 1 CONTAINS A DESCRIPTION OF THE EXPERIMENTAL PROGRAM, THE RESULTING METHOD FOR PREDICTING THE NOISE OF FULL-SCALE COAXIAL FLOW JETS IN TERMS OF MAXIMUM SIDELINE PERCEIVED NOISE LEVEL (PNL), AND A DESIGN GUIDE FOR NOISE MINIMIZATION AT CONSTANT THRUST. THE VOLUME CONTAINS A LISTING OF THE EXPERIMENTAL RUNS THAT WERE MADE IN THE COURSE OF THIS PROJECT. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 748 876 1/3 20/1
ARMY RESEARCH OFFICE DURHAM N C

HELICOPTER NOISE SYMPOSIUM, HELD AT DURHAM'S HOTEL AND MOTEL, DURHAM, NORTH CAROLINA, ON SEPTEMBER 28-30 1971. (U)

SEP 71 164P
MONITOR: AROD 9164:1-E

UNCLASSIFIED REPORT

DESCRIPTORS: (*HELICOPTERS, *NOISE), AERODYNAMIC NOISE, JET PLANE NOISE, JET ENGINE NOISE, ROTOR BLADES(ROTARY WINGS), VORTICES, ACOUSTIC PROPERTIES, ACOUSTICS, SYMPOSIA (U)
IDENTIFIERS: *VORTEX SHEDDING (U)

A SYMPOSIUM IN WHICH RECOGNIZED EXPERTS IN THE HELICOPTER NOISE FIELD PARTICIPATED WAS ORGANIZED. PRIMARY RESEARCHERS FROM TEN ARO-D-SPONSORED CONTRACTS AND FIVE OTHER GROUPS PRESENTED PAPERS ON THE SUBJECT OF HELICOPTER NOISE. IN ADDITION, HELICOPTER NOISE RESEARCH AT TWO U. S. ARMY AIR MOBILITY R AND D LABORATORIES (AAMRDL), AT NASA LANGLEY RESEARCH CENTER, AND AT THE OFFICE OF THE CHIEF OF RESEARCH AND DEVELOPMENT (OCRD) WAS DISCUSSED. THE REPORT INCLUDES ALL FORMAL PAPERS PRESENTED AT THE HELICOPTER NOISE SYMPOSIUM HELD IN DURHAM, NORTH CAROLINA, ON SEPTEMBER 29-30, 1971. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 749 137 20/1 21/5 1/3
LOCKHEED-GEORGIA CO MARIETTA

THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME II. FUTURE STUDIES FOR DEFINITION OF SUPERSONIC JET NOISE GENERATION AND REDUCTION MECHANISMS. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. 1 MAY 71-31 MAY 72,
JUL 72 46P PLUMBLEE,HARRY E. ;BURRIN, ROBERT H. ;
CONTRACT: F33615-71-C-1663
PROJ: AF-3066
TASK: 306614
MONITOR: AFAPL TR-72-53-VOL-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 3, AD-749 138, AND VOLUME 1, AD-749 428.

DESCRIPTORS: (*JET ENGINE NOISE, ACOUSTIC PROPERTIES), (*SUPERSONIC AIRCRAFT, *JET PLANE NOISE), ACOUSTICS, AERODYNAMIC NOISE, SOUND TRANSMISSION, GAS TURBINE NOZZLES, AFTERBURNING, JET MIXING FLOW, COMBUSTION, LASERS, INTERFEROMETERS (U)
IDENTIFIERS: NEAR FIELD NOISE, *NOISE REDUCTION, ACOUSTIC FIELDS, ACOUSTIC MEASUREMENT, HOLOGRAPHY, *JET PLANE NOISE, *SUPERSONIC AIRCRAFT, FAR FIELD NOISE (U)

THE REPORT CONTAINS A DETAILED LIST OF PROPOSED RECOMMENDATIONS FOR WORK NECESSARY TO ATTAIN THE GOAL OF DEVELOPING TECHNOLOGY FOR SIGNIFICANTLY REDUCING SUPERSONIC AIRCRAFT PROPULSION SYSTEM NOISE. THE RECOMMENDATIONS AND PROPOSED WORK TASK ARE BASED ON THE RESEARCH FINDINGS REPORTED IN VOLUME 1 AND VOLUMES 3-6 OF THIS REPORT. RECOMMENDATIONS FOR EXPERIMENTAL AND THEORETICAL STUDIES OF TURBULENT-MIXING JET NOISE, SHOCK-ASSOCIATED NOISE AND UPSTREAM NOISE ARE DETAILED IN THE TECHNICAL PLAN. ALSO RECOMMENDATIONS FOR IMPROVEMENTS IN INSTRUMENTATION AND NOISE SUPPRESSION STUDIES ARE LISTED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 749 138 20/1 21/5 1/3
LOCKHEED-GEORGIA CO MARIETTA

THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME III. PROGRESS TOWARD A UNIFIED THEORY OF JET ENGINE NOISE. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. 1 MAY 71-31 MAY 72,
JUL 72 151P DOAK,PHILIP E.
CONTRACT: F33615-71-C-1663
PROJ: AF-3066
TASK: 306614
MONITOR: AFAPL TR-72-53-VOL-3

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 4, AD-749 139, AND VOLUME 2, AD-749 137.

DESCRIPTORS: (*JET ENGINE NOISE, ACOUSTIC PROPERTIES), (*SUPERSONIC AIRCRAFT, *JET PLANE NOISE), ACOUSTICS, AERODYNAMIC NOISE, SOUND TRANSMISSION, GAS TURBINE NOZZLES, AFTERBURNING, JET MIXING FLOW, COMBUSTION, LASERS, INTERFEROMETERS (U)
IDENTIFIERS: NEAR FIELD NOISE, *NOISE REDUCTION, ACOUSTIC MEASUREMENT, ACOUSTIC FIELDS, HOLOGRAPHY, *JET PLANE NOISE, *SUPERSONIC AIRCRAFT, FAR FIELD NOISE (U)

EXISTING THEORIES OF AERODYNAMIC NOISE GENERATION ARE CRITICALLY REVIEWED WITH SPECIAL EMPHASIS ON CONCEPTUAL ADEQUACY AND PHYSICAL SCOPE WITH SPECIAL REFERENCE TO SUPERSONIC JET NOISE. IN THIS REVIEW THE BASIC WORK OF STOKES, KIRCHOFF AND RAYLEIGH ON FLUCTUATING MOTIONS IN FLUIDS IS RECALLED AND DEVELOPED TO PROVIDE A FIRM BASIS FOR THE CRITIQUE. THE ADVANTAGES AND DISADVANTAGES OF ACOUSTIC ANALOGY THEORIES SUCH AS LIGHTHILL'S ARE THOROUGHLY DISCUSSED IN SECTION 11.3. A CONTRIBUTION IS MADE TOWARDS REMOVING THE CRITICISMS MADE BY LIGHTHILL OF RIBNER'S 'ISOTROPIC SOURCE TENSOR' THEORY. NEW DEVELOPMENTS SUCH AS THOSE BY CROW, LILLEY AND DOAK ARE EMPHASIZED. ON THE BASIS OF THE EVIDENCE PROVIDED BY THE CRITICAL REVIEW, A NEW UNIFIED THEORY FOR JET NOISE HAS BEEN DEVISED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 749 139 20/1 21/5 1/3
LOCKHEED-GEORGIA CO MARIETTA

THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME IV. THEORY OF TURBULENCE GENERATED JET NOISE, NOISE RADIATION FROM UPSTREAM SOURCES, AND COMBUSTION NOISE. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. 1 MAY 71-31 MAY 72,
JUL 72 189P LILLEY,GEOFFREY M. ; PLUMBLEE,HARRY E. ;STRAHLE,WARREN C. ;RUO, SONG-YEONG ;DOAK,PHILIP E. ;
CONTRACT: F33615-71-C-1663
PROJ: AF-3066
TASK: 306614
MONITOR: AFAPL TR-72-53-VOL-4

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 5, AD-749 140, AND VOLUME 3, AD-749 138.

DESCRIPTORS: (*JET ENGINE NOISE, ACOUSTIC PROPERTIES), (*SUPERSONIC AIRCRAFT, *JET PLANE NOISE), ACOUSTICS, AERODYNAMIC NOISE, SOUND TRANSMISSION, GAS TURBINE NOZZLES, AFTERBURNING, JET MIXING FLOW, COMBUSTION, LASERS, INTERFEROMETERS (U)
IDENTIFIERS: NEAR FIELD NOISE, *NOISE REDUCTION, ACOUSTIC MEASUREMENT, ACOUSTIC FIELDS, HOLOGRAPHY, *JET PLANE NOISE, *SUPERSONIC AIRCRAFT, FAR FIELD NOISE (U)

THE REPORT PRESENTS A SERIES OF SPECIFIC THEORETICAL STUDIES DIRECTED TOWARD THE SOLUTION OF JET NOISE GENERATION AND RADIATION, UPSTREAM NOISE RADIATION AND COMBUSTION NOISE GENERATION. THREE THEORIES ARE PRESENTED. LILLEY'S WORK IS A NEW THEORY OF JET NOISE GENERATION, BASED ON IDENTIFICATION OF ACOUSTIC AND SOURCE GENERATION TERMS. THE ACOUSTIC 'CONVERTED WAVE EQUATION' DERIVED INCLUDES THE PRIDMORE-BROWN/MUNGUR SHEAR REFRACTION TERM. PLUMBLEE PRESENTS A THEORETICAL ANALYSIS AND NUMERICAL SOLUTION TECHNIQUES FOR SOLVING FOR THE RADIATION FIELD FROM A SOURCE WITHIN A JET FLOW AND SPECIFICALLY DEALS WITH RADIATION FROM AN ACOUSTIC DISTRIBUTION INITALLY SPECIFIED AT THE END OF A CIRCULAR EXHAUST DUCT TERMINATION THROUGH THE JET FLOW TO THE SURROUNDING MEDIUM.

(U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 749 140 20/1 21/5 1/3
LOCKHEED-GEORGIA CO MARIETTA

THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME V. AN EXPERIMENTAL INVESTIGATION OF JET NOISE VARIATION WITH VELOCITY AND TEMPERATURE. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. 1 MAY 71-31 MAY 72,
JUL 72 172P LUSH,PETER A. ;BURRIN, ROBERT H. ;
CONTRACT: F33615-71-C-1663
PROJ: AF-3066
TASK: 306614
MONITOR: AFAPL TR-72-53-VOL-5

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 6, AD-749 141, AND VOLUME 4, AD-749 139.

DESCRIPTORS: (*JET ENGINE NOISE, ACOUSTIC PROPERTIES), (*SUPERSONIC AIRCRAFT, *JET PLANE NOISE), ACOUSTICS, AERODYNAMIC NOISE, SOUND TRANSMISSION, GAS TURBINE NOZZLES, AFTERBURNING, JET MIXING FLOW, COMBUSTION, LASERS, INTERFEROMETERS (U)
IDENTIFIERS: NEAR FIELD NOISE, *NOISE REDUCTION, ACOUSTIC FIELDS, ACOUSTIC MEASUREMENT, HOLOGRAPHY, *JET PLANE NOISE, *SUPERSONIC AIRCRAFT, FAR FIELD NOISE (U)

A SERIES OF EXPERIMENTS WAS CONDUCTED FOR THE PURPOSE OF CLEARLY ISOLATING AND QUANTIFYING THE NOISE SOURCES ASSOCIATED WITH SUPERSONIC JET NOISE AND FOR ESTABLISHING THE EFFECT OF REFRACTION ON THE RADIATED FIELD OF THESE SOURCES, AS WELL AS THE RADIATION FIELD CHARACTERISTICS OF THESE SOURCES. RESULTS FROM THE TURBULENT-MIXING TESTS AND THE SHOCK-ASSOCIATED TESTS ARE APPENDED TO THIS REPORT IN SEPARATE VOLUMES. THE TURBULENCE NOISE 1/3 OCTAVE CORRECTED DATA APPEAR IN APPENDIX I AND THE SHOCK-ASSOCIATED NARROW-BAND SPECTRA APPEAR IN APPENDIX 2. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 749 141 20/1 21/5 1/3
LOCKHEED-GEORGIA CO MARIETTA

THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME V - APPENDIX I. TURBULENCE MIXING REGION NOISE DATA. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. 1 MAY 71-31 MAY 72,
JUL 72 575P BURRIN,ROBERT H. ;LUSH, PETER A. ;WYNNE,GEORGE A. ;
CONTRACT: F33615-71-C-1663
PROJ: AF-3066
TASK: 306614
MONITOR: AFAPL TR-72-53-VOL-5-APP-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 7, AD-749 142, AND VOLUME 5, AD-749 140.

DESCRIPTORS: (*JET ENGINE NOISE, ACOUSTIC PROPERTIES), (*SUPERSONIC AIRCRAFT, *JET PLANE NOISE), ACOUSTICS, AERODYNAMIC NOISE, SOUND TRANSMISSION, GAS TURBINE NOZZLES, AFTERBURNING, JET MIXING FLOW, COMBUSTION, LASERS, INTERFEROMETERS (U)
IDENTIFIERS: NEAR FIELD NOISE, *NOISE REDUCTION, ACOUSTIC FIELDS, ACOUSTIC MEASUREMENT, HOLOGRAPHY, *JET PLANE NOISE, *SUPERSONIC AIRCRAFT, FAR FIELD NOISE (U)

A SERIES OF EXPERIMENTS WAS CONDUCTED FOR THE PURPOSE OF CLEARLY ISOLATING AND QUANTIFYING THE NOISE SOURCES ASSOCIATED WITH SUPERSONIC JET NOISE AND FOR ESTABLISHING THE EFFECT OF REFRACTION ON THE RADIATED FIELD OF THESE SOURCES, AS WELL AS ESTABLISHING THE RANGE OF VALIDITY OF AVAILABLE THEORETICAL FORMULAS FOR PREDICTING THE RADIATION FIELD CHARACTERISTICS OF THESE SOURCES. TURBULENT MIXING REGION NOISE FROM A FULLY EXPANDED SUPERSONIC FLOW EXHAUSTING FROM A WELL DESIGNED CONVERGENT-DIVERGENT NOZZLE WAS MEASURED OVER A VERY WIDE RANGE OF OPERATIONAL PARAMETERS. THIS APPENDIX CONTAINS COMPUTER PRINTOUTS OBTAINED FROM A JET NOISE DATA ANALYSIS PROGRAM FOR TURBULENT MIXING REGION NOISE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 749 142 20/1 21/5 1/3
LOCKHEED-GEORGIA CO MARIETTA

THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME V - APPENDIX II. SHOCK ASSOCIATED NOISE DATA. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. 1 MAY 71-31 MAY 72,
JUL 72 243P LUSH,PETER A. ;BURRIN, ROBERT H. ;
CONTRACT: F33615-71-C-1663
PROJ: AF-3066
TASK: 306614
MONITOR: AFAPL TR-72-53-VOL-5-APP-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 6, AD-749 143, AND VOLUME 5, AD-749 141.

DESCRIPTORS: (*JET ENGINE NOISE, ACOUSTIC PROPERTIES), (*SUPERSONIC AIRCRAFT, *JET PLANE NOISE), ACOUSTICS, AERODYNAMIC NOISE, SOUND TRANSMISSION, GAS TURBINE NOZZLES, AFTERBURNING, JET MIXING FLOW, COMBUSTION, LASERS, INTERFEROMETERS (U)
IDENTIFIERS: NEAR FIELD NOISE, *NOISE REDUCTION, ACOUSTIC FIELDS, ACOUSTIC MEASUREMENT, HOLOGRAPHY, *JET PLANE NOISE, *SUPERSONIC AIRCRAFT, FAR FIELD NOISE (U)

A SERIES OF EXPERIMENTS WAS CONDUCTED FOR THE PURPOSE OF CLEARLY ISOLATING AND QUANTIFYING THE NOISE SOURCES ASSOCIATED WITH SUPERSONIC JET NOISE AND FOR ESTABLISHING THE EFFECT OF REFRACTION ON THE RADIATED FIELD OF THESE SOURCES, AS WELL AS ESTABLISHING THE RANGE OF VALIDITY OF AVAILABLE THEORETICAL FORMULAS FOR PREDICTING THE RADIATION FIELD CHARACTERISTICS OF THESE SOURCES. SHOCK-ASSOCIATED NOISE, BOTH DISCRETE AND BROADBAND, WAS INVESTIGATED THOROUGHLY. THIS APPENDIX CONTAINS SEQUENCES OF DATA IN THE FORM OF NARROW BAND SPECTRA ILLUSTRATING THE EXISTENCE OF THESE TYPES OF SHOCK ASSOCIATED NOISE IN THE JET FLOWS INVESTIGATED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 749 143 20/1 21/5 1/3
LOCKHEED-GEORGIA CO MARIETTA

THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME VI. JET FLOW MEASUREMENT AND ANALYSIS WITH SPECIAL EMPHASIS ON REMOTE SENSING DEVICES. CROSSED BEAM SCHLIEREN, LASER DOPPLER VELOCIMETER, PULSED LASER INTERFEROMETER. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. 1 MAY 71-31 MAY 72,
JUL 72 320P FISHER,MICHAEL J. ;MAYO, WILLIAM T. ;MEADOWS,DONALD M. ;BURRIN,ROBERT H. ;BEISEL,GEORGE E. ;
CONTRACT: F33615-71-C-1663
PROJ: AF-3066
TASK: 306614
MONITOR: AFAPL TR-72-53-VOL-6

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 5, AD-749 142.

DESCRIPTORS: (*JET ENGINE NOISE, ACOUSTIC PROPERTIES), (*SUPERSONIC AIRCRAFT, *JET PLANE NOISE), ACOUSTICS, AERODYNAMIC NOISE, SOUND TRANSMISSION, GAS TURBINE NOZZLES, AFTERBURNING, JET MIXING FLOW, COMBUSTION, LASERS, INTERFEROMETERS (U)
IDENTIFIERS: NEAR FIELD NOISE, *NOISE REDUCTION, ACOUSTIC MEASUREMENT, ACOUSTIC FIELDS, HOLOGRAPHY, *JET PLANE NOISE, *SUPERSONIC AIRCRAFT, FAR FIELD NOISE (U)

THE REPORT DESCRIBES THREE REMOTE SENSING DEVICES DEVELOPED TO MEASURE JET EXHAUST FLUCTUATING DENSITY GRADIENTS, MEAN AND TURBULENT VELOCITY AND MEAN TEMPERATURE ARE DESCRIBED. THESE INSTRUMENTS ARE A CROSSED-BEAM SCHLIEREN, A LASER DOPPLER VELOCIMENTER, AND A PULSED LASER INTERFEROMETER. A JET TURBULENCE FACILITY WAS DEVELOPED, ALONG WITH FIVE 2 INCH DIAMETER JET NOZZLES (ONE CONVERGENT AND FOUR CON-DIV, UP TO MACH 2.0), FOR THE PURPOSE OF PROVIDING LABORATORY CONTROLLED CONDITIONS, IN ORDER TO PROPERLY EVALUATE THE REMOTE SENSING INSTRUMENTS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 749 428 20/1 21/5 1/3
LOCKHEED-GEORGIA CO MARIETTA

THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME I. SUMMARY OF SUPERSONIC JET NOISE STUDIES. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. 1 MAY 71-31 MAY 72,
JUL 72 47P PLUMBLEE,HARRY E. ;DOAK, PHILIP E. ;
CONTRACT: F33615-71-C-1663
PROJ: AF-3066
TASK: 306614
MONITOR: AFAPL TR-72-53-VOL-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-749 137.

DESCRIPTORS: (*JET ENGINE NOISE, ACOUSTIC PROPERTIES), (*SUPERSONIC AIRCRAFT, *JET PLANE NOISE), ACOUSTICS, JET MIXING FLOW, SOUND TRANSMISSION, GAS TURBINE NOZZLES, AFTERBURNING, COMBUSTION, AERODYNAMIC NOISE, LASERS, INTERFEROMETERS (U)
IDENTIFIERS: NEAR FIELD NOISE, *NOISE REDUCTION, ACOUSTIC MEASUREMENT, ACOUSTIC FIELDS, HOLOGRAPHY, *JET PLANE NOISE, *SUPERSONIC AIRCRAFT, FAR FIELD NOISE (U)

THIS IS A SUMMARY REPORT OF THE RESULTS OF A 13-MONTH RESEARCH PROGRAM ON THE GENERATION AND REDUCTION OF SUPERSONIC JET NOISE. THIS PROGRAM WAS PLANNED AS THE FIRST PHASE OF A FOUR-PHASE EFFORT. TASKS COMPROMISING THIS PHASE 1 PROGRAM WERE AS FOLLOWS: REVIEWS AND EVALUATION OF EXISTING THEORETICAL MODELS FOR SUPERSONIC JET NOISE GENERATION AND RADIATION; DEVELOPMENT OF THE FRAMEWORK OF A NEW, UNIFIED THEORY OF AERODYNAMIC NOISE; DEVELOPMENT OF A NEW THEORETICAL MODEL OF TURBULENT MIXING REGION NOISE; DEVELOPMENT OF A NEW THEORETICAL MODEL FOR CALCULATING PROGAGATION AND RADIATION OF UPSTREAM NOISE; A PRELIMINARY REVIEW OF COMBUSTION NOISE; TESTS ON TURBULENT MIXING REGION NOISE AND SHOCK-ASSOCIATED NOISE; REVIEW OF THE PROBLEMS OF JET FLOW MEASUREMENT AND ANALYSIS; DEVELOPMENT OF NEW INSTRUMENTATION FOR JET FLOW MEASUREMENT; ESTABLISHMENT OF FULL FACILITIES FOR THE TOTAL PROGRAM; FORMULATION OF THE PROGRAM FOR FUTURE STUDIES. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 752 279 20/1
DEUTSCHE FORSCHUNGS- UND VERSUCHSANSTALT FUER LUFT- UND RAUMFAHRT E V BERLIN (WEST GERMANY)

NEW ASPECTS OF SOUND GENERATION BY CIRCULAR JETS, (U)

71 11P MICHALKE, ALFONS ;
REPT. NO. DFVLR-SONDERDRUCK-179

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN FLUID DYNAMICS TRANSACTIONS, V6 PT2 P439-448 1971.

DESCRIPTORS: (*JET ENGINE NOISE, JET MIXING FLOW), TURBULENCE, TURBULENT BOUNDARY LAYER, BESSEL FUNCTIONS, FOURIER ANALYSIS, INTEGRAL TRANSFORMS, ACOUSTICS, WEST GERMANY (U)

THE REPORT PRESENTS A NUMERICAL ANALYSIS OF THE MECHANISM OF NOISE GENERATION IN JETS AND CORRELATES JET TURBULENCE WITH NOISE GENERATION. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 752 535 13/2 1/5
ENVIRONMENTAL HEALTH LAB MCCLELLAN AFB CALIF

NOISE ENVIRONMENTS OF CONTROL TOWERS. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
JAN 72 20P CAPELL,ROBERT A. ;
REPT. NO. EHL-M-72M-1
PROJ: AF-EHL-NBF-133

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIRPORT CONTROL TOWERS, *NOISE), (*JET FIGHTERS, *AIRCRAFT NOISE), SOUND, AIR FORCE, ATTENUATION (U)
IDENTIFIERS: *NOISE POLLUTION, F-104 AIRCRAFT, F-105 AIRCRAFT, F-111 AIRCRAFT, F-4 AIRCRAFT (U)

NOISE SURVEYS WERE MADE AT THE CONTROL TOWERS OF TWO AIR FORCE BASES. MEASUREMENTS OF THE INDOOR AND OUTDOOR SOUND PRESSURE LEVELS DURING AIRCRAFT TAKE-OFFS AND OTHER OPERATIONS WERE RECORDED. THESE DATA ARE PRESENTED SO THAT AN EVALUATION OF THE COMMUNICATION ENVIRONMENTS CAN BE MADE BY USING CERTAIN OPERATIONAL DATA FROM EACH BASE. AN EVALUATION OF THE NOISE ATTENUATION PROVIDED BY EACH TOWER IS ALSO MADE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 753 000 21/5 20/1
NAVAL AIR PROPULSION TEST CENTER TRENTON N J PROPULSION TECHNOLOGY AND PROJECT ENGINEERING DEPT

STATE-OF-THE-ART REVIEW OF TURBINE ENGINE INLET NOISE. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT.,
NOV 72 159P BENHAM,ROBERT B. ;
REPT. NO. NAPTC-PE-6
PROJ: A330-5360/218-B/1F32-432-308

UNCLASSIFIED REPORT

DESCRIPTORS: (*JET ENGINE NOISE, *TURBOJET INLETS), (*TURBOFAN ENGINES, JET ENGINE NOISE), DESIGN, NOISE, ATTENUATION, INLET GUIDE VANES, DUCT INLETS, VORTICES, ACOUSTIC INSULATION, STATE-OF-THE-ART REVIEWS (U)
IDENTIFIERS: VORTEX SHEDDING, NOISE REDUCTION, NOISE POLLUTION, TF-34 ENGINES (U)

THE REPORT POINTS OUT THAT TURBINE-TYPE ENGINE DESIGN IS EVOLVING IN A DIRECTION WHICH WILL MAKE FAN AND COMPRESSOR TURBOMACHINERY NOISE CONTINUALLY MORE OBSTRUSIVE. THE TF34 ENGINE IS REPRESENTATIVE OF 'STATE-OF-THE-ART' HIGH BYPASS RATIO SUBSONIC TURBOFAN TECHNOLOGY. IT CONTAINS NO INLET NOISE-SUPPRESSION DESIGN AND THE INLET NOISE EXCEEDS FEDERAL AIR REGULATION PART 36 TAKE-OFF SIDELINE NOISE LIMITS BY ABOUT 6PNDB. THERE ARE DESCRIPTIONS AND THEORETICAL PRESENTATIONS EXPLAINING THE PRINCIPAL MECHANISMS PRODUCING THE THREE INLET NOISE CONTRIBUTORS; INTERACTION TONES, COMBINATION TONES, AND BROADBAND RADIATION. IT IS SHOWN THAT NOISE CONTROL CAN BE AFFECTED EITHER AT THE ROTOR-STATOR SOURCE OR WITH NACELLE INSTALLATION ATTENUATION. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 753 113 6/6 20/1
ENVIRONMENTAL HEALTH LAB KELLY AFB TEX

NOISE SURVEY, F-105 OVERFLIGHTS, WICHITA MOUNTAINS WILDLIFE REFUGE AND VICINITY, FORT SILL, OKLAHOMA. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
SEP 72 69P FRAZIER,ALVIN R. ;
REPT. NO. EHL(K)-72-21

UNCLASSIFIED REPORT

DESCRIPTORS: (*JET PLANE NOISE, ECOLOGY), (*MILITARY FACILITIES, JET PLANE NOISE), FREQUENCY, MEASUREMENT, AIR FORCE TRAINING, TABLES(DATA), OKLAHOMA (U)
IDENTIFIERS: F-105 AIRCRAFT, ENVIRONMENTS, SURVEYS (U)

A NOISE SURVEY QUANTITATED THE ENVIRONMENTAL NOISE LEVELS WHICH WOULD BE PRODUCED BY F-105 AIRCRAFT FLIGHTS OVER THE QUANAH WEAPONS RANGE LOCATED ON FORT SILL. DATA WERE OBTAINED AT A NEARBY JOB CORP CENTER, CAMP BOULDER LOCATED ON THE ADJOINING WICHITA MOUNTAINS WILDLIFE REFUGE AND THE CITIES OF CACHE AND INDIAHOMA. ADVERSE EFFECTS ON THE ENVIROMENT ARE PREDICTED TO BE MINIMAL AND SERIOUS INTERFERENCE WITH PRESENT OR FUTURE LAND USES IS NOT EXPECTED. AFTER SERIOUS CONSIDERATION OF MANY FACTORS, THE BENEFITS TO BE GAINED THROUGH THE PROPOSED JOINT USE OF THIS EXISTING ARTILLERY RANGE OUTWEIGH THE MINIMAL ADVERSE EFFECTS THAT WOULD DEVELOP BECAUSE OF THE FLYBY NOISE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 753 397 20/1 1/3
BOEING CO PHILADELPHIA PA VERTOL DIV

AN INVESTIGATION OF NOISE GENERATION ON A HOVERING ROTOR, PART II. (U)

DESCRIPTIVE NOTE: FINAL RFPT. 1 FEB 71-31 JUL 72,
NOV 72 106P STERNFELD,H. ;BOBO ,C. ;
CARMICHAEL,D. ;FUKUSHIMA,T. ;SPENCER,R. ;
REPT. NO. D210-10550-1
CONTRACT: DAHC04-69-C-0087
MONITOR: AROD 8704:3-E

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED JAN 71, AD-721 312.

DESCRIPTORS: (*HELICOPTER ROTORS, *PROPELLER NOISE), HELICOPTERS, HOVERING, VORTICES, AIRCRAFT NOISE, ROTARY WINGS, TEST METHODS, AIRPLANE MODELS (U)

THE STUDY IS A NATURAL EXTENSION OF THE PROGRAM TO INVESTIGATE NOISE GENERATION ON A HOVERING ROTOR REPORTED IN AN PREVIOUS INVESTIGATION. THAT PROGRAM ACQUIRED DATA ON A LARGE (60 FT.) DIAMETER ROTOR OPERATING ON A WHIRL TOWER, AND EVALUATED THAT DATA IN THE LIGHT OF ESTABLISHED ANALYTICAL PROCEDURES. THE WORK DESCRIBED IN THIS REPORT COMPARES AVAILABLE DATA IN ORDER TO INVESTIGATE THE EFFECTS OF VARIATIONS IN ROTOR DESIGN. THIS DATA, WHICH WAS AVAILABLE FROM OTHER TEST PROGRAMS INCLUDED VARIATIONS IN NUMBER OF BLADES OF SIMILAR AIRFOIL, AIRFOIL, AND PLATFORM. ALSO INCLUDED IS AN EVALUATION OF MODEL TESTING BY COMPARISON OF THE RESULTS OF THE FULL SIZE HELICOPTER ROTOR WITH A ONE-ELEVENTH SCALE MODEL. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 754 094 14/2 20/1 21/5
PRINCETON UNIV N J DEPT OF AEROSPACE AND MECHANICAL SCIENCES

RESEARCH ON NOISE GENERATED BY DUCTED AIR-FUEL COMBUSTION SYSTEMS. (U)

DESCRIPTIVE NOTE: ANNUAL REPT. 1 MAR 71-29 FEB 72,
MAR 72 44P PLETT,EDELBERT G. ;
SUMMERFIELD,MARTIN ;
CONTRACT: N00014-67-A-0151-0029

UNCLASSIFIED REPORT

DESCRIPTORS: (*JET ENGINE NOISE, *TEST FACILITIES), DESIGN, ANECHOIC CHAMBERS, ORIFICES, DUCTED BODIES, NOZZLE INSERTS, ACOUSTICS, ATTENUATION, BIBLIOGRAPHIES (U)

THE DEVELOPMENT OF A JET NOISE FACILITY TO STUDY THE INTERACTION OF THE FLOW WITH BLUFF BODIES INSIDE THE DUCT RESULTING IN MORE INTENSE NOISE THAN IS EXPECTED FROM THE JET ITSELF IS DESCRIBED. THE LONG RANGE OBJECTIVE IS TO USE THE INFORMATION ON NOISE DUE TO BLUFF BODIES AND NON-STEADY COMBUSTION INSIDE THE DUCT TO RELATE THEIR RELATIVE IMPORTANCE AS A SOURCE OF NOISE IN AN AIRCRAFT JET ENGINE. THE CONSTRUCTION OF THE FLOW SYSTEM AND ANECHOIC CHAMBER IS DESCRIBED. AN ANALYTICAL MODEL IS DEVELOPED WHICH INCORPORATES SOURCES OF NOISE BOTH INSIDE AND OUTSIDE THE ENGINE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 754 111 20/1 1/3
BOLT BERANEK AND NEWMAN INC CANOGA PARK CALIF

NOISE FROM AIRCRAFT OPERATIONS, U. S. NAVAL AIR STATION, LEMOORE, CALIFORNIA. (U)

AUG 72 35P
REPT. NO. BBN-2225
CONTRACT: N62474-72-C-0344

UNCLASSIFIED REPORT

DESCRIPTORS: (*NAVAL AIR STATIONS, *JET AIRCRAFT NOISE), TAKEOFF, AIRCRAFT LANDINGS, TAXIING, JET ENGINE NOISE, STRESS(PHYSIOLOGY), TOLERANCES(PHYSIOLOGY), AVIATION PERSONNEL, CALIFORNIA (U)
IDENTIFIERS: *LEMOORE NAVAL AIR STATION, *NOISE POLLUTION, NOISE (U)

THE REPORT PROVIDES DESCRIPTIONS OF THE AIRCRAFT NOISE ENVIRONMENT FOR LAND AREAS ON OR IN THE VICINITY OF THE NAVAL AIR STATION, LEMOORE, CALIFORNIA. THE NOISE RESULTING FROM AIRCRAFT OPERATIONS AT NAS LEMOORE IS CONSIDERED IN SOME DETAIL FROM THE POINT OF VIEW OF LAND USE, AND ALSO WITH RESPECT TO POTENTIAL HEARING DAMAGE IN MAINTENANCE AREAS ON THE STATION. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 754 270 20/1 1/3
ULTRASYSTEMS INC NEWPORT BEACH CALIF

THE EFFECTS OF LOCAL METEOROLOGICAL FACTORS UPON AIRCRAFT NOISE MEASUREMENTS. (U)

DESCRIPTIVE NOTE: FINAL REPT. AUG-NOV 72,
NOV 72 48P WOOTEN,D. C. ;EIDEMILLER, R. L. ;
CONTRACT: W1-73-0382-1
MONITOR: FAA-RD 72-145

UNCLASSIFIED REPORT

DESCRIPTORS: (*METEOROLOGICAL PHENOMENA, *SOUND TRANSMISSION), (*JET PLANE NOISE, MEASUREMENT), TEMPERATURE INVERSION, WIND, ATMOSPHERIC TEMPERATURE, HUMIDITY, ANALYSIS OF VARIANCE, STATISTICAL DATA (U)
IDENTIFIERS: ATMOSPHERES, ATTENUATION, BOEING 737 AIRCRAFT (U)

AIRCRAFT NOISE MEASUREMENTS FROM THE BOEING 737, MADE AT ORANGE COUNTY AIRPORT, SANTA ANA, CALIFORNIA, DURING OPERATIONAL CONDITIONS, ARE STATISTICALLY CORRELATED WITH THE LOCAL METEOROLOGICAL FACTORS INCLUDING WIND FORCE AND DIRECTION, TEMPERATURE, HUMIDITY BAROMETRIC PRESSURE, CEILING AND VISIBILITY. THE CORRELATION WAS CARRIED OUT USING REGRESSION TECHNIQUES AND INDICATED THAT THERE IS A SIGNIFICANT INVERSE CORRELATION BETWEEN TEMPERATURE AND NOISE LEVEL. WIND SPEED APPEARED TO BE OF SIGNIFICANCE IN ONE CALCULATION THAT INCLUDED WIND SPEEDS UP TO 25 KNOTS, BUT WAS NOT SIGNIFICANT WHEN THE RANGE OF WIND SPEEDS WAS 15 KNOTS AND BELOW. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 754 943 20/1 1/3
NATIONAL AERONAUTICAL ESTABLISHMENT OTTAWA (ONTARIO)

A SIMPLE MODEL OF SHOCK CELL NOISE GENERATION AND ITS REDUCTION. (U)

DESCRIPTIVE NOTE: AERONAUTICAL REPT.,
OCT 72 40P CHAN,Y. Y. ;
REPT. NO. NAE-LR-564
MONITOR: NRC 12923

UNCLASSIFIED REPORT

DESCRIPTORS: (*SOUND PITCH, ATTENUATION), (*JETS, SUPERSONIC FLOW), (*SUPERSONIC AIRCRAFT, *JET PLANE NOISE), AERODYNAMIC NOISE, NOZZLE GAS FLOW, UNCONVENTIONAL NOZZLES, SHOCK WAVES, ACOUSTICS, SPECTRUM SIGNATURES, ACOUSTIC IMPEDANCE, NOZZLE AREA RATIO, MATHEMATICAL MODELS, CANADA (U)
IDENTIFIERS: NEAR FIELD NOISE, NOISE GENERATION, NOISE REDUCTION, NOISE POLLUTION, COMPUTER AIDED DESIGN, DESIGN CRITERIA (U)

BASED ON THE DATA OF NEAR FIELD SURVEYS OF THE SOUND PRESSURE FROM A CHOKED JET, A SIMPLE MODEL IS PROPOSED FOR THE MECHANISM OF THE SCREECH GENERATION. A CONVECTED WAVE PROPAGATES DOWNSTREAM ALONG THE JET BOUNDARY AND IS MODULATED BY ITS INTERACTION WITH THE SHOCK-EXPANSION WAVES OF THE JET. THESE INTERACTIONS GENERATE STRONG DIPOLE RADIATIONS. USING THIS MODEL, AN EXCELLENT REPRODUCTION OF THE ESSENTIAL FEATURES OF THE EXPERIMENTAL RESULTS IS OBTAINED. BY PREVENTING THE FORMATION OF SHOCK WAVES INSIDE THE JET, THE STRONG DIPOLE RADIATION AND HENCE THE SCREECH NOISE CAN BE ELIMINATED. DESIGN DATA FOR PERFORATED NOZZLES TO ACHIEVE FULL EXPANSION OF THE JET ARE PROVIDED. THIS AVOIDS THE MECHANICAL COMPLICATION OF AN ADJUSTABLE CONVERGENT-DIVERGENT NOZZLE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 756 040 21/5 20/1
BOEING CO SEATTLE WASH COMMERCIAL AIRPLANE GROUP

727NOISE RETROFIT FEASIBILITY. VOLUME I.
LOWER GOAL DESIGN, FABRICATION, GROUND AND
FLIGHT TESTING. (U)

DESCRIPTIVE NOTE: FINAL REPT. JUL 71-MAR 72,
MAR 72 61P TATE,R. B. ;RIPLEY,H. G.
;LAMBERT,J. A. ;
CONTRACT: DOT-FA71WA-2637
PROJ: FAA-202-811-058
MONITOR: FAA-RD 72-40-VOL-1

UNCLASSIFIED REPORT

DESCRIPTORS: (*JET ENGINE NOISE, ACOUSTIC IMPEDANCE),
(*TURBOJET ENGINES, DESIGN), COMMERCIAL PLANES, JET
ENGINE NACELLES, SANDWICH PANELS, HONEYCOMB CORES,
TURBOJET EXHAUST NOZZLES, ACOUSTIC INSULATION, FLIGHT
TESTING, COSTS (U)
IDENTIFIERS: NOISE REDUCTION, NOISE REDUCTION,
ACOUSTIC PANELS, AIRCRAFT, BOEING 727 AIRCRAFT, JT-8D
ENGINES (U)

THE WORK PERFORMED IN PHASE 1 OF THE CONTRACT WAS DESIGN, FABRICATION, AND GROUND TESTING OF A TREATED NACELLE CONFIGURATION CONFORMING TO THE FAA LOWER NOISE REDUCTION GOALS FOR THE 727 AIRPLANE. THE NACELLE CONFIGURATION TESTED CONSISTS OF ACOUSTICALLY TREATED SIDE ENGINE INLET, FAN DUCT AND TAILPIPE. THIS NACELLE CONFIGURATION WAS DEVELOPED BY THE BOEING COMAPNY, FLIGHT TESTED AND CERTIFICATED IN JULY 1971. THE SAME NACELLE WAS THEN USED TO CONDUCT THE CONTRACT PHASE 1 GROUND TESTS TO OBTAIN COMPARATIVE ACOUSTIC AND PERFORMANCE DATA WITH THE BASIC, OR TARE, NACELLE. IN ADDITION, A COST ANALYSIS WAS PREPARED SHOWING THE RETROFIT KIT INSTALLATION AND DIRECT OPERATING COST (DOC) CHARGED TO THE 727 AIRPLANE WITH A PHASE 1 QUIET NACELLE. THE RESULTS OF THE FLIGHT TESTING, NOT A PART OF THIS CONTRACT, ARE INCLUDED IN THIS REPORT. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 757 862 13/2
ENVIRONMENTAL HEALTH LAB MCCLELLAN AFB CALIF

NOISE AND AIR POLLUTION EMISSIONS FROM NOISE SUPPRESORS FOR ENGINE TEST STANDS AND AIRCRAFT POWER CHECK PADS. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
JAN 72 138P BURNETT,RONALD D. ;
REPT. NO. EHL-M-71M-19
PROJ: EHL-M-AAF-127

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIR POLLUTION, *TURBOJET ENGINES), (*JET ENGINE NOISE, TURBOJET ENGINES), SUPPRESSORS, CAPTIVE TESTS, SAMPLING, TEST EQUIPMENT, CARBON DIOXIDE, CARBON MONOXIDE, HYDROCARBONS, OXYGEN, NITROGEN OXIDES, PARTICLES, EXHAUST GASES, GAS FLOW, VELOCITY, ATMOSPHERIC PRECIPITATION, WIND, JET FIGHTERS, MILITARY FACILITIES (U)
IDENTIFIERS: NOISE REDUCTION, NOISE REDUCTION, ACOUSTIC MEASUREMENT, PLUMES, F-4 AIRCRAFT, F-4C AIRCRAFT, F-111A AIRCRAFT, J-79-17 ENGINES, TF-30 ENGINES, *EMISSION (U)

THE REPORT PRESENTS IN DETAIL THE RESULTS OF THE ENVIRONMENTAL POLLUTION STUDIES OF THE A/F 32A-13, A/F 32A-14, AND A/F 32T-2 JET ENGINE AND AIRCRAFT NOISE SUPPRESSORS. DETAILED DESCRIPTIONS OF THE SAMPLING AND MEASUREMENT METHODS USED DURING THESE STUDIES AS WELL AS REFINED JET ENGINE EMISSIONS FACTORS, DESCRIPTIONS OF EXHAUST PLUME FORMATION, AND DISCUSSIONS OF DOWNWIND RAINOUT OF LIQUID DROPLETS FROM THE EXHAUST PLUME ARE PRESENTED. THE NOISE DATA OBTAINED ARE ALSO PRESENTED BUT UNLIKE THE AIR POLLUTION DATA WILL HAVE LITTLE GENERAL APPLICATION. HOWEVER, THE NOISE DATA WILL BE OF USE TO THOSE BASES ANTICIPATING OR CURRENTLY USING THE NOISE SUPPRESSORS STUDIED. THE REPORT ALSO PROVIDES DATA TO BE USED FOR DETERMINING THE IMPACT OF ENGINE TESTING ON LOCAL AIR QUALITY. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 758 588 20/1 1/5
FEDERAL AVIATION ADMINISTRATION WASHINGTON D C OFFICE OF ENVIRONMENTAL QUALITY

AIRCRAFT SOUND DESCRIPTION SYSTEM
BACKGROUND AND APPLICATION. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
MAR 73 61P CRUZ,J. E. ;
REPT. NO. FAA-EQ-73-3

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIRCRAFT NOISE, *AIRPORTS), PERIODIC VARIATIONS, EXPOSURE(PHYSIOLOGY), THRESHOLDS(PHYSIOLOGY), MEASUREMENT, TAKEOFF, AIRCRAFT LANDINGS (U)
IDENTIFIERS: *NOISE POLLUTION, *NOISE EXPOSURE, *EXPOSURE TIME (U)

AN OBJECTIVE APPROACH TO DESCRIBING AIRCRAFT SOUND LEVELS FOR AREAS IN THE VICINITY OF AIRPORTS CALLED 'AIRCRAFT SOUND DESCRIPTION SYSTEM' (ASDS), SUITABLE FOR BOTH MANUAL AND COMPUTER APPLICATION, IS SET FORTH. THE BASIC PREMISE OF THE CONCEPT IS TO STATE EXPOSURE TO AIRCRAFT SOUND IN TERMS OF THE AMOUNT OF TIME THAT SOUND LEVELS EXCEED A PRESELECTED THRESHOLD VALUE. THE RATIONALE SUPPORTING THE SELECTION OF THIS PROCEDURE, THE SELECTION OF THE THRESHOLD VALUE, AS WELL AS SOME OPERATING TIME CONSTANTS ARE COVERED TOGETHER WITH TWO HYPOTHETICAL APPLICATIONS. (AUTHOR MODIFIED ABSTRACT) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 759 212 1/2 20/1
HYDROSPACE-CHALLENGER INC ROCKVILLE MD

RESULTS OF NOISE SURVEYS OF SEVENTEEN GENERAL AVIATION TYPE AIRCRAFT. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
DEC 72 75P GRAY,DAMON C. ;
CONTRACT: DOT-FA73WA-3179
MONITOR: FAA-EQ 73-1

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIRCRAFT NOISE, STATISTICAL DATA), (*CIVIL AVIATION, AIRCRAFT NOISE), PROPELLER NOISE, ENGINE NOISE, TAKEOFF, APPROACH, DATA PROCESSING (U)
IDENTIFIERS: *NOISE POLLUTION, NOISE, GENERAL AVIATION AIRCRAFT (U)

NOISE LEVELS, IN TERMS OF EPNL, PNL, DBA AND DBD ARE PRESENTED FOR BOTH JET AND PROPELLER-DRIVEN GENERAL AVIATION TYPE AIRCRAFT. THE NOISE LEVELS WERE DERIVED FROM MEASUREMENTS TAKEN BY THE FAA AND NASA/LRC AT THE NATIONAL AVIATION FACILITIES EXPERIMENTAL CENTER (NAFWC, ATLANTIC CITY, NEW JERSEY, DURING JUNE THROUGH SEPTEMBER 1972. LEVELS DERIVED FROM ACTUAL TAKE-OFF AND CONSTANT ALTITUDE FLY-BYS ARE PRESENTED WHEREVER POSSIBLE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 759 862 14/2 20/1 21/5
GRUMMAN AEROSPACE CORP BETHPAGE N Y RESEARCH DEPT

GRUMMAN JET NOISE FACILITY. (U)

DESCRIPTIVE NOTE: RESEARCH REPT.,
MAY 73 59P MACIULAITIS,ALGIRDAS ;YEN,
JAMES T. ;LIND,ARTHUR L. ;LOEFFLER,ALBERT
L. , JR;
REPT. NO. RE-450
MONITOR: GIDEP 347.00.00.00-K4-164

UNCLASSIFIED REPORT

DESCRIPTORS: (*ACOUSTIC RANGES, DESIGN), (*JET ENGINE NOISE, TEST FACILITIES), ACOUSTIC EQUIPMENT, INSTRUMENTATION, NOISE, MEASUREMENT, AERODYNAMIC NOISE, VORTICES, SITE SELECTION (U)
IDENTIFIERS: NOISE, DESIGN CRITERIA (U)

THE JET NOISE TEST FACILITY OF THE GRUMMAN RESEARCH DEPARTMENT IS DESCRIBED IN DETAIL. HOT FILM ANEMOMETERS HAVE BEEN USED WITH A SPECIALLY DESIGNED TRAVERSING MECHANISM TO MEASURE MEAN AND TURBULENT VELOCITIES IN THE JET FLOW. THE BASIC ACOUSTIC INSTRUMENTATION CONSISTS OF MICROPHONES MOUNTED AT THE ENDS OF THREE 23-FOOT BOOMS WHICH SWING THROUGH THE NOZZLE'S AXIS OF SYMMETRY. THESE MICROPHONES PROVIDE INFORMATION ON THE DIRECTIONALITY AND STRENGTH OF THE FAR FIELD NOISE EMANATING FROM THE JET. FLOW AND ACOUSTIC MEASUREMENTS MADE TO DATE ARE IN GOOD AGREEMENT WITH DATA OF OTHER INVESTIGATORS. ONE OF THE MAJOR UNSOLVED PROBLEMS OF JET NOISE RESEARCH IS THE DETERMINATION OF THE DISTRIBUTION OF NOISE SOURCES WITHIN THE JET FLOW. (AUTHOR MODIFIED ABSTRACT) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 762 296 20/1 14/2
BOLT BERANEK AND NEWMAN INC CAMBRIDGE MASS

SUPERSONIC JET NOISE INVESTIGATION USING JET FLUCTUATING PRESSURE PROBES. (U)

DESCRIPTIVE NOTE: FINAL REPT. MAY 71-JUN 72, JUN 73 130P SCHARTON,TERRY D. ;WHITE, PRITCHARD H. ;RENTZ,PETER E. ;
REPT. NO. BRN-2220
CONTRACT: F33615-71-C-1661
MONITOR: AFAPL TR-73-35

UNCLASSIFIED REPORT

DESCRIPTORS: (*JET PLANE NOISE, MEASUREMENT), (*PROBES, PRESSURE), DETECTORS, PERIODIC VARIATIONS, MICROPHONES, EXPERIMENTAL DESIGN, TEST FACILITIES, JETS, SUPERSONIC CHARACTERISTICS, NOSE CONES, HIGH TEMPERATURE, SUBSONIC CHARACTERISTICS, SOUND GENERATORS, ACOUSTIC PROPERTIES, EXHAUST NOZZLES, MATHEMATICAL MODELS, MODEL TESTS, CURVE FITTING (U)
IDENTIFIERS: NOSE TIPS (U)

VARIOUS MECHANISMS OF JET NOISE GENERATION ARE MODELED USING THE FLUCTUATING JET PRESSURES TO CHARACTERIZE THE SOURCES. THE SUBSONIC MIXING MECHANISM IS SHOWN TO DOMINATE FOR SONIC AND MILDLY SUPERSONIC JETS. AN INPUT-OUTPUT RELATION BETWEEN THE JET PRESSURE AND SOUND PRESSURE SPECTRAL DENSITIES IS DERIVED AND VERIFIED. FLUCTUATING PRESSURE PROBES ARE DEVELOPED TO MEASURE SOURCES OF NOISE GENERATION IN SONIC AND SUPERSONIC JET EXHAUSTS. JET EXHAUSTS WITH TOTAL TEMPERATURES AS HIGH AS 3500F MAY BE MEASURED. DEFINITIVE DATA ARE OBTAINED REGARDING THE PERCENTAGE OF THE SOUND RADIATED AT A GIVEN ANGLE AND FREQUENCY BY EACH REGION OF THE JET EXHAUST. SIMPLE LASER REFRACTION EXPERIMENTS SUPPORT THE FLUCTUATING PRESSURE MEASUREMENTS. (MODIFIED AUTHOR ABSTRACT) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 763 596 21/5 20/1 1/3
BOEING COMMERCIAL AIRPLANE CO SEATTLE WASH

727 NOISE RETROFIT FEASIBILITY. VOLUME II. UPPER GOAL DESIGN, FABRICATION, AND GROUND TESTING. (U)

DESCRIPTIVE NOTE: FINAL REPT. JUL 71-NOV 72,
NOV 72 116P ANDERSON,J. R. ;RIDLEY,H. G. ;SMITH,J. W. ;
REPT. NO. D6-60175
CONTRACT: DOT-FA71WA-2637
PROJ: FAA-202-551-015
MONITOR: FAA-RD 72-40-VOL-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 1, AD-756 040.

DESCRIPTORS: (*JET ENGINE NOISE, ACOUSTIC IMPEDANCE), (*TURBOJET ENGINES, DESIGN), COMMERCIAL PLANES, JET ENGINE NACELLES, SANDWICH PANELS, HONEYCOMB CORES, TURBOJET EXHAUST NOZZLES, ACOUSTIC INSULATION, FLIGHT TESTING, COSTS (U)
IDENTIFIERS: NOISE REDUCTION, NOISE REDUCTION, ACOUSTIC PANELS, AIRCRAFT, BOEING 727 AIRCRAFT, JT-8D ENGINES (U)

THE WORK PERFORMED IN PHASE 2 OF THE CONTRACT WAS DEVELOPMENT, DESIGN, FABRICATION, AND GROUND TESTING OF A FLIGHTWORTHY QUIET-NACELLE CONFIGURATION CONFORMING TO THE FAA UPPER NOISE-REDUCTION GOALS FOR THE 727 AIRPLANE. THE QUIET-NACELLE CONFIGURATION TESTED CONSISTS OF A DOUBLE-RING, ACOUSTICALLY TREATED, SIDE ENGINE INLET; ACOUSTICALLY TREATED ENGINE FAN DUCT; AND A MULTILOBE, VARIABLE-GEOMETRY EJECTOR/SUPPRESSOR IN THE ENGINE EXHAUST SYSTEM. THIS QUIET-NACELLE CONFIGURATION WAS GROUND TESTED TO OBTAIN COMPARATIVE ACOUSTIC AND PERFORMANCE DATA WITH THE PRODUCTION-BASELINE NACELLE. A DIRECT OPERATING COST (DOC) ANALYSIS WAS PREPARED BASED ON PRELIMINARY RETROFIT INSTALLATION COST ESTIMATES AND PREDICTED AIRPLANE PERFORMANCE ANALYSES. IN ADDITION, A RETROFIT KIT AND INSTALLATION PACKAGE WERE DEVELOPED TO OBTAIN REALISTIC RETROFIT KIT PRICES, INSTALLATION COSTS, AND MAINTENANCE COSTS TO FACILITATE THE FINAL UPDATE OF THE DIRECT OPERATING COST ANALYSIS.
(AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 765 470 17/2
ARMY MEDICAL RESEARCH LAB FORT KNOX KY

SPEECH INTELLIGIBILITY TESTING WITH THE MODIFIED RHYME TEST IN AVIATION TYPE NOISE. (U)

DESCRIPTIVE NOTE: INTERIM REPT.,
MAR 73 12P MOSKO, JAMES D. ;
REPT. NO. USAMRL-1027
PROJ: DA-3-A-061102-B-71-P
TASK: 3-A-061102-B-71-P-08

UNCLASSIFIED REPORT

DESCRIPTORS: (*SPEECH RECOGNITION, PERFORMANCE(HUMAN)), (*SPEECH, *INTELLIGIBILITY), (*AIRCRAFT NOISE, INTERFERENCE), TEST METHODS, TEST EQUIPMENT, AUDITORY ACUITY, MALES, SIGNAL-TO-NOISE RATIO, INTENSITY, STATISTICAL ANALYSIS, MILITARY PERSONNEL, ARMY RESEARCH (U)
IDENTIFIERS: MODIFIED RHYME TEST, EVALUATION (U)

TWENTY-EIGHT YOUNG ADULT MALE SUBJECTS LISTENED TO SEVERAL VERSIONS OF A MODIFIED RHYME TEST (MRT) AT THREE DIFFERENT S/N RATIOS AND THREE LEVELS OF BACKGROUND NOISE. THE AVERAGE PERCENT CORRECT DATA WERE EVALUATED IN TERMS OF EAR RECEIVING SIGNALS, NOISE LEVEL, AND S/N RATIO. THE DATA INDICATE AN APPROPRIATENESS OF THE MRT PARADIGM FOR EVALUATING THE AUDITORY CAPABILITIES OF MILITARY PERSONNEL. (MODIFIED AUTHOR ABSTRACT) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 766 498 6/19
NAVAL AEROSPACE MEDICAL RESEARCH LAB PENSACOLA FLA

THE EFFECT OF NOISE EXPOSURE DURING PRIMARY FLIGHT TRAINING ON THE CONVENTIONAL AND HIGH FREQUENCY HEARING OF NAVAL AVIATION OFFICER CANDIDATES. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
AUG 73 34P ROBERTSON,RONALD M. ;
WILLIAMS,CARL E. ;
REPT. NO. NAMRL-1190

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-739 368.

DESCRIPTORS: (*HEARING, AIRCRAFT NOISE), (*AIRCRAFT NOISE, FLIGHT CREWS), AVIATION PERSONNEL, NAVAL PERSONNEL, NOISE, EXPOSURE(PHYSIOLOGY), THRESHOLDS(PHYSIOLOGY), AUDIOMETRY, SPEECH RECOGNITION (U)

THE INVESTIGATION WAS DESIGNED TO EXPLORE THE RELATIONSHIP BETWEEN AVIATION NOISE EXPOSURE HISTORY AND HIGH-FREQUENCY HEARING SENSITIVITY. THE NAMRL PORTION OF THE STUDY FOCUSED ON ADMINISTERING CONVENTIONAL AUDIOMETRY, HIGH-FREQUENCY AUDIOMETRY (4 KHZ - 18 KHZ), AND A SPEECH INTELLIGIBILITY TEST IN NOISE TO 108 NAVAL AVIATION OFFICER CANDIDATES PRIOR TO THE FOLLOWING PRIMARY FLIGHT TRAINING (APPROXIMATELY 25-28 HOURS) IN T-34 AIRCRAFT. HEARING PROTECTION CONSISTED OF EITHER THE APH-6C OR APH-6D FLIGHT HELMET. COCKPIT NOISE LEVELS IN THE T-34 RANGE FROM 96-115 DBA; DURING CRUISE THE NOISE LEVEL IS APPROXIMATELY 100 DBA. RESULTS INDICATE NO SIGNIFICANT CHANGE IN HEARING SENSITIVITY OR SPEECH DISCRIMINATION THAT COULD BE ATTRIBUTED TO NOISE EXPOSURE DURING PRIMARY FLIGHT TRAINING. (MODIFIED AUTHOR ABSTRACT) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 767 336 1/3 20/1
PRINCETON UNIV N J DEPT OF AEROSPACE AND MECHANICAL SCIENCES

NOISE GENERATION BY CYLINDRICAL SPOILERS IMMERSED IN AN AIR DUCT. (U)

DESCRIPTIVE NOTE: INTERIM TECHNICAL REPT., MAR 73 254P TOWER,T. M. ;PLETT, EDELBERT G. ;CHIU,H. H. ;SUMMERFIELD,MARTIN ;

REPT. NO. AMS-1092
CONTRACT: N00014-67-A-0151-0029

UNCLASSIFIED REPORT

DESCRIPTORS: (*SPOILERS, *AERODYNAMIC NOISE), (*JET ENGINE NOISE, *TURBOJET EXHAUST NOZZLES), (*JET TRANSPORT PLANES, *TURBOFAN ENGINES), COMMERCIAL PLANES, JET PLANE NOISE, DUCTS, VORTICES, TURBULENCE, MATHEMATICAL MODELS, COMPUTER PROGRAMS (U)
IDENTIFIERS: VORTEX SHEDDING, *NOISE GENERATION (U)

THE REPORT DESCRIBES A STUDY CONCERNED WITH THE EFFECT OF THIN CYLINDRICAL FLOW SPOILERS UPSTREAM OF THE EXIT PLANE OF A CONSTANT-AREA DUCT ON THE ACOUSTIC POWER OUTPUT AND DIRECTIVITY PATTERNS OF THE NOISE FIELD EXTERNAL TO THE DUCT. SPOILERS OF DIAMETER 1/16, 5/32, AND 3/16 IN. WERE PLACED AT 1/8 IN. AND 11 IN. FROM THE EXIT PLANE OF A 1 IN. DIAMETER DUCT. FAR-FIELD SOUND PRESSURE LEVELS WERE MEASURED IN AN ANECHOIC CHAMBER OVER A MEAN VELOCITY RANGE OF 250 TO 900 FT/S. THE FREQUENCY RANGE OF THE INVESTIGATION WAS 200 HZ TO 50 KHZ, WHILE THE REYNOLDS NUMBER RANGE, BASED ON MEAN VELOCITY UPSTREAM OF THE SPOILER AND ON SPOILER DIAMETER, WAS 8000 TO 80,000. (MODIFIED AUTHOR ABSTRACT) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 767 337 21/5 20/1
PRINCETON UNIV N J DEPT OF AEROSPACE AND MECHANICAL SCIENCES

RESEARCH ON NOISE GENERATED BY DUCTED AIR-FUEL COMBUSTION SYSTEMS. (U)

DESCRIPTIVE NOTE: ANNUAL REPT. NO. 2, 1 MAR 72-28 FEB 73,
MAR 73 31P PLETT,EDELBERT G. ;CHIU,H. H. ;SUMMERFIELD,MARTIN ;
CONTRACT: N00014-67-A-0151-0029
PROJ: NR-094-366

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO ANNUAL REPT. NO. 1 DATED 1 MAR 72, AD-754 094.

DESCRIPTORS: (*JET ENGINE NOISE, SOURCES), DUCTED BODIES, AFTERBURNERS, COMBUSTION, TURBULENCE, MATHEMATICAL MODELS, BIBLIOGRAPHIES (U)
IDENTIFIERS: NOISE GENERATION (U)

A TWO-PRONGED APPROACH TO THE STUDY OF NOISE GENERATION BY COMBUSTION IN A CONFINED FLOW SYSTEM, SIMILAR TO A JET ENGINE CONFIGURATION, IS DESCRIBED. ONE ASPECT DEALS WITH THE MECHANISMS OF NOISE GENERATION BY COMBUSTION; THE OTHER ASPECT DEALS WITH THE EFFECT OF CONFINEMENT ON THE NOISE GENERATION AND RADIATING PROPERTIES OF AN UNSTEADY SOLID-BODY-FLOW INTERACTION. THE MECHANISMS OF NOISE GENERATION BY COMBUSTION ARE BEING STUDIED ANALYTICALLY. IT IS NOTED THAT THE STEADY FLAME STRUCTURE DETERMINE THE BASIC THERMODYNAMIC PROPERTIES SUCH AS THE SOUND SPEED AND DISTRIBUTION OF HEAT RELEASE, WHICH AFFECT AMPLIFICATION, DISPERSION AND PROPAGATION OF SOUND. THE NON-STEADY FLAME CHARACTERISTICS ARE RESPONSIBLE FOR NOISE GENERATION; THE TURBULENT SCALE, PERIOD AND INTENSITY AFFECT THE BURNING RATE AND HEAT RELEASE RATE. THE OVERALL NOISE GENERATION CHARACTER IS A SUPERPOSITION OF THE STEADY AND NON-STEADY ACOUSTIC CHARACTERISTICS. IN STUDIES WITH DUCTED AND NON-DUCTED SOURCES, IT IS FOUND THAT THE INTERACTION BETWEEN THE DUCT AND THE NOISE SOURCE CAN ENHANCE THE NOISE GENERATION POTENTIAL OF THE SOURCE REGION. THE NOISE DUE TO UNSTEADY FLOW OVER SMALL STRUTS INSIDE A DUCT IS FOUND TO OVERWHELM THE FREE JET NOISE UP TO SPEEDS IN EXCESS OF 1000 FT/SEC. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 768 615 21/2 20/1 21/5
GEORGIA INST OF TECH ATLANTA SCHOOL OF AEROSPACE ENGINEERING

COMBUSTION GENERATED NOISE IN TURBOPROPULSION SYSTEMS. (U)

DESCRIPTIVE NOTE: INTERIM TECHNICAL REPT.,
JUL 73 96P SHIVASHANKARA,B. N. ;
HANDLEY,J. C. ;STRAHLE,W. C. ;
CONTRACT: AF-AFOSR-2365-72
PROJ: AF-9711
TASK: 971102
MONITOR: AFOSR TR-73-1899

UNCLASSIFIED REPORT

DESCRIPTORS: (*COMBUSTION, ACOUSTICS), (*JET ENGINE NOISE, COMBUSTION), FLAMES, TURBULENCE, JET FLAMES, AFTERBURNING, POWER SPECTRA, SCREAMING COMBUSTION, EXPERIMENTAL DATA (U)
IDENTIFIERS: COMBUSTION NOISE, SCALING FACTORS, NOISE REDUCTION, NOISE POLLUTION, ACOUSTIC RADIATION (U)

EXPERIMENTS ON NOISE RADIATION BY OPEN TURBULENT PREMIXED FLAMES ARE DESCRIBED. DETAILED DIRECTIONALITY DISTRIBUTIONS, SCALING RULES FOR ACOUSTIC POWER RADIATED, THERMO-ACOUSTIC EFFICIENCY AND SPECTRAL CONTENT ARE PRESENTED AND DISCUSSED. SCALING RULES FOR REACTING VOLUME ARE GENERATED BY A DIRECT FLAME PHOTOGRAPHY TECHNIQUE. THESE EXPERIMENTS ARE SHOWN TO BE QUITE USEFUL IN DECOMPOSING COMBUSTION NOISE SCALING LAWS. THE ACOUSTIC POWER IS SHOWN TO SCALE AS U(2.7) D(2.8) SL(1.4) F(0.4), AND COMBUSTION NOISE SPECTRA PEAK IN THE 250-700 HZ RANGE. THE DIRECTIONALITY IS QUITE WEAK FOR NOISE FROM OPEN TURBULENT FLAMES. THE EXPERIMENTAL RESULTS ARE CRITICALLY EXAMINED IN THE LIGHT OF THE THEORETICAL PREDICTIONS FROM STRAHLE'S THEORY OF COMBUSTION NOISE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 768 847 20/1
FEDERAL AVIATION ADMINISTRATION WASHINGTON D C OFFICE OF SYSTEMS ENGINEERING MANAGEMENT

ENGINEERING AND DEVELOPMENT PROGRAM PLAN - AIRCRAFT NOISE AND SONIC BOOM. (U)

JUN 73 38P
REPT. NO. FAA-ED-20-2

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIRCRAFT NOISE, ACOUSTIC IMPEDANCE), JET PLANE NOISE, SONIC BOOM, ENGINE NOISE, STRESS(PHYSIOLOGY), TOLERANCES(PHYSIOLOGY), LAW, PLANNING (U)
IDENTIFIERS: NOISE, NOISE EXPOSURE, NOISE REDUCTION, NOISE REDUCTION, NOISE POLLUTION, ENVIRONMENTAL NOISE EXPOSURE MEASUREMENT (U)

THE REPORT DESCRIBES A PROGRAM PLAN DESIGNED TO PROVIDE A DATA BASE FROM WHICH TO DEVELOP RULE MAKING FOR CONTROL AND ABATEMENT OF AIRCRAFT NOISE AND SONIC BOOM. PRIMARY OBJECTIVES ARE TO MINIMIZE THE ENVIRONMENTAL IMPACT OF AIRCRAFT GENERATED NOISE AND SONIC BOOM AND TO DEVELOP PREDICTION, REDUCTION AND CERTIFICATION CRITERIA FOR ALL CATEGORIES OF AIRCRAFT. DEVELOPMENT ACTIVITIES CURRENTLY IN PROGRESS PLUS PROGRAMS PLANNED FOR A PERIOD OF APPROXIMATELY FIVE YEARS ARE DESCRIBED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 768 850 21/5 20/1 1/3
BOEING COMMERCIAL AIRPLANE CO SEATTLE WASH

727 NOISE RETROFIT FEASIBILITY. VOLUME III. UPPER GOAL FLIGHT TESTING AND PROGRAM SUMMARY. (U)

DESCRIPTIVE NOTE: FINAL REPT. JUL 71-DEC 72, JUN 73 227P HIATT,D. L. ;MCKAIG,M. B. ;
REPT. NO. D6-60196
CONTRACT: DOT-FA71WA-2637
MONITOR: FAA-RD 72-40-VOL-3

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-763 596.

DESCRIPTORS: (*JET ENGINE NOISE, ACOUSTIC IMPEDANCE), (*TURBOJET ENGINES, DESIGN), COMMERCIAL PLANES, JET ENGINE NACELLES, SANDWICH PANELS, HONEYCOMB CORES, TURBOJET EXHAUST NOZZLES, ACOUSTIC INSULATION, FLIGHT TESTING, COSTS (U)
IDENTIFIERS: BOEING 727 AIRCRAFT, JT-8 ENGINES, JT-8D ENGINES, NOISE REDUCTION, NOISE REDUCTION, ACOUSTIC PANELS, AIRCRAFT (U)

THE WORK CONSISTED OF FLIGHT TESTING OF THE QUIET-NACELLE CONFIGURATION DEVELOPED IN PHASE 2 IN FULFILLMENT OF THE FAA UPPER NOISE REDUCTION GOALS FOR THE 727 AIRPLANE, ALONG WITH PARALLEL FLIGHT TESTING OF THE 727 PRODUCTION NACELLE AS A BASELINE. ALL TESTING WAS PERFORMED ON A MODEL 727-100 AIRPLANE, WITH RESULTS EXTRAPOLATED TO THE LONG-BODY 200 MODEL. THE PHASE 2 NACELLES CONSIST OF PERIPHERAL ACOUSTIC LINING IN ALL INLETS PLUS DOUBLE-RING ACOUSTIC TREATMENT IN THE SIDE-ENGINE INLETS; ACOUSTICALLY TREATED ENGINE FAN DUCTS; AND MULTILOBE VARIABLE-GEOMETRY JET NOISE SUPPRESSORS DISCHARGING THROUGH FIXED, ACOUSTICALLY LINED EJECTORS, WITH PROVISION FOR AUTOMATIC CLOSURE OF THE EJECTOR INLETS FOR CRUISE OPERATION. ACOUSTIC PROPULSION, AND AERODYNAMIC PERFORMANCE ANALYSES WERE MADE, ALONG WITH A STUDY OF THE PHYSICAL EFFECTS OF INTEGRATING THE PHASE 2 NACELLE ON BOTH MODEL 727S. A DIRECT-OPERATING-COST (DOC) ANALYSIS WAS PREPARED BASED ON REALISTIC RETROFIT INSTALLATION COST ESTIMATES AND AIRPLANE PERFORMANCE ANALYSES. IN ADDITION, A STUDY WAS MADE OF ENGINE AND AIRFRAME OPTIONS AVAILABLE FOR RECOVERY OF PERFORMANCE PENALTIES INCURRED BY INSTALLATION OF PHASE 2 NACELLES. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 770 185 5/10
SOCIETY OF AUTOMOTIVE ENGINEERS INC NEW YORK

AN EVALUATION OF PSYCHOACOUSTIC PROCEDURES FOR DETERMINING HUMAN RESPONSE TO AIRCRAFT NOISE. VOLUME I. SPECIFICATIONS FOR FOUR EXPERIMENTS. (U)

DESCRIPTIVE NOTE: FINAL REPT.
OCT 73 66P
REPT. NO. SAE-R-12-1
CONTRACT: DOT-FA71WA-2673
MONITOR: FAA-RD 72-51-VOL-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-770 244.

DESCRIPTORS: *AIRCRAFT NOISE, *PSYCHOACOUSTICS, *RESPONSE, HUMAN FACTORS ENGINEERING, TEST METHODS, LABORATORY PROCEDURES, TAPE RECORDING, SPECIFICATIONS, REQUIREMENTS (U)

ABSENCE OF GOOD AGREEMENT AMONG LABORATORY STUDIES INVOLVING HUMAN RESPONSE TO AIRCRAFT NOISE LED TO THE CONCLUSION THAT THE APPLICATION OF DIFFERENT PSYCHOACOUSTIC PROCEDURES COULD ACCOUNT FOR DIFFERING CONCLUSIONS. SINCE THERE IS A CONTINUING REQUIREMENT TO DEVELOP AN ENGINEERING CALCULATION PROCEDURE WHICH VALIDLY REFLECTS RESPONSE TO FLYOVER NOISE FROM FUTURE AIRCRAFT (STOL, VTOL, SST), A THREE-PHASE PROGRAM WAS CONCEPTUALIZED. THE DOCUMENT DEALS WITH PHASE 1: DETAILING OF SPECIFICATIONS AND REQUIREMENTS FOR FOUR PSYCHOACOUSTIC LABORATORY EXPERIMENTS PLUS THE ACQUISITION OF TAPE RECORDINGS OF NOISES THAT MATCH THE FOUR EXPERIMENTS. (MODIFIED AUTHOR ABSTRACT) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 770 244 5/10
SOCIETY OF AUTOMOTIVE ENGINEERS INC NEW YORK

AN EVALUATION OF PSYCHOACOUSTIC PROCEDURES FOR DETERMINING HUMAN NOISE: VOLUME II. DEMONSTRATED EXAMPLES. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
OCT 73 96P MABRY,J. E. ;PARRY,H. J.
;
REPT. NO. SAE-R-12-2
CONTRACT: DOT-FA71WA-2673
MONITOR: FAA-RD 72-51-VOL-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 1, AD-770 185.

DESCRIPTORS: *PSYCHOACOUSTICS, *AIRCRAFT NOISE, *RESPONSE, LABORATORY PROCEDURES, TEST METHODS, PERCEPTION, QUESTIONNAIRES, STIMULI, INTENSITY (U)
IDENTIFIERS: EVALUATION, COMPARISON (U)

A VARIETY OF LABORATORY PROCEDURES HAVE BEEN USED TO MEASURE HUMAN RESPONSE TO AIRCRAFT NOISE DURING THE DEVELOPMENT OF THE EFFECTIVE PERCEIVED NOISE LEVEL (EPNL) CONCEPT. EVALUATION OF THESE PROCEDURES TO DETERMINE THEIR EFFECTIVENESS WOULD BE USEFUL IN FURTHER REFINEMENTS OF EPNL. THIS REPORT DESCRIBES A PROJECT TO DEMONSTRATE HOW FOUR OF THE LABORATORY METHODS CAN BE TESTED AND THE RESULTS USED TO PROVIDE A COMPARATIVE EVALUATION. THE GENERAL CONCLUSION IS THAT EXPERIMENTAL PLANS FOR FOUR BASIC PSYCHOACOUSTIC LABORATORY METHODS HAVE BEEN DEMONSTRATED. THE REPORT DESCRIBES SOME TENTATIVE FINDINGS THAT ARE INTERESTING AND SIGNIFICANT IN THE CONTEXT OF THE DEMONSTRATED EXAMPLES. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 773 687 20/1 1/3
HUMAN ENGINEERING LAB ABERDEEN PROVING GROUND MD

A TECHNIQUE FOR MEASURING THE EXTERNAL NOISE OF A MOVING HELICOPTER. (U)

DESCRIPTIVE NOTE: TECHNICAL MEMO.,
SEP 73 75P LINCE,DONALD L. ;
REPT. NO. HEL-TM-16-73

UNCLASSIFIED REPORT

DESCRIPTORS: *HELICOPTERS, *JET ENGINE NOISE, *ACOUSTIC DETECTION, ACOUSTIC DETECTORS, ACOUSTIC MEASUREMENT, FLYBY, TEST EQUIPMENT, MATHEMATICAL MODELS, COMPUTER APPLICATIONS (U)

A TECHNIQUE HAS BEEN DEVISED TO MEASURE THE NOISE PRODUCED BY A MOVING HELICOPTER. THE EQUIPMENT USED IS EASILY PORTABLE, RELATIVELY SIMPLE, ACCURATE AND PROVIDES INSTANT READOUT OF AIRCRAFT SPEED AND ALTITUDE. THE SOUND PRESSURE LEVELS MEASURED DURING THE FLYOVERS HAVE BEEN CORRECTED TO A CONSTANT 200-FOOT DISTANCE FROM THE SOURCE AND POLAR PLOTS HAVE BEEN PREPARED SHOWING THE CORRECTED SOUND PRESSURE LEVEL BY OCTAVE BANDS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 774 748 1/3 20/4
BELL AEROSPACE CO BUFFALO N Y

JET NOISE REDUCTION TECHNIQUE FOR MILITARY RECONNAISSANCE/SURVEILLANCE AIRCRAFT. PHASE I. BENCH/WIND TUNNEL TESTS. (U)

DESCRIPTIVE NOTE: FINAL REPT. 30 JUN 71-31 JUL 72 ON PHASE 1,
AUG 73 150P BOSSLER,F. B. ;BARSOTTELLI, M. V. ;KRISHNAMOORTHY,V. ;
REPT. NO. BAC-7389-945009
CONTRACT: F33615-71-C-1840
PROJ: AF-1471
TASK: 147102
MONITOR: AFFDL TR-72-107

UNCLASSIFIED REPORT

DESCRIPTORS: *RECONNAISSANCE AIRCRAFT, *JET ENGINE NOISE, *NOISE REDUCTION, JET ENGINES, EXHAUST NOZZLES, DUCTS, STRUTS, WIND TUNNEL MODELS, AERODYNAMIC CHARACTERISTICS (U)
IDENTIFIERS: *QUIET AIRCRAFT (U)

A NOVEL METHOD OF JET NOISE REDUCTION HAS BEEN SUBJECTED TO BENCH AND WIND TUNNEL TESTS. THIS METHOD USES VERY SMALL NOZZLES ARRANGED ON STRUTS PROTRUDING FROM THE UPPER SURFACE OF AN AIRCRAFT WING. THESE NOZZLES ARE INTENDED TO REPLACE THE CONVENTIONAL SINGLE PROPULSIVE NOZZLE OF THE JET ENGINE FOR THE PRIMARY PURPOSE OF REDUCING THE AURAL DETECTABILITY OF THE JET NOISE BY MODIFYING ITS FREQUENCY SPECTRUM. TESTS OF THIS CONCEPT WERE CONDUCTED DURING THIS PROGRAM INCLUDING ACOUSTIC COMPARISON OF A DOZEN DIFFERENT NOZZLE ARRANGEMENTS; TESTS WITH HEATED AIR; ACOUSTIC AND PROPULSION TESTS OF AN ARRAY OF SEVERAL THOUSAND NOZZLES; ACOUSTIC WIND TUNNEL TESTS OF STRUTS AND INLET CONFIGURATIONS; AND AERODYNAMIC WIND TUNNEL TESTS OF AN ARRAY OF 6,000 NOZZLES ON A WING SECTION. ADDITIONAL TASKS INCLUDED PRELIMINARY DESIGN OF A QUIET RESEARCH TEST VEHICLE AND PREDICTION OF ITS AURAL DETECTABILITY. TESTS OF VARIOUS NOZZLE ARRANGEMENTS RESULTED IN SELECTION OF A SINGLE ROW OF NOZZLES ON EACH STRUT. TESTS WITH HEATED AIR SHOWED THAT JET NOISE COULD BE PREDICTED BASED ON JET VELOCITY, INDEPENDENT OF JET TEMPERATURE. (MODIFIED AUTHOR ABSTRACT) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 775 950 20/4
NAVAL ACADEMY ANNAPOLIS MD ENVIRONMENTAL PROTECTION RESEARCH AND DEVELOPMENT TEAM

FORCES ON A COANDA SURFACE. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT.,
NOV 73 38P LOPARDO,VINCENT J. ;
REPT. NO. USNA-EPRD-1

UNCLASSIFIED REPORT

DESCRIPTORS: *COANDA EFFECT, *CAPTIVE TESTS, *JET ENGINES, *NOISE POLLUTION, *JET ENGINE NOISE, HAZARDS, HEARING, COMMUNITY RELATIONS, SURFACE PROPERTIES, AERODYNAMIC FORCES, AERODYNAMIC NOISE, DISTRIBUTION, DYNAMIC PRESSURE, NUMERICAL INTEGRATION, FLOW FIELDS, MATHEMATICAL MODELS, TEST METHODS (U)

THE OBJECT OF THE STUDY WAS TO ANALYZE THE FORCES ON A COANDA SURFACE. THE SURFACE ANALYZED WAS USED IN AN EXPERIMENTAL PROJECT FUNDED BY THE NAVAL AIR SYSTEMS COMMAND. THE FINAL RESULTS ARE BASED ON A NUMERICAL INTEGRATION OF THE PRESSURE DISTRIBUTION. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 776 127 1/2
DOUGLAS AIRCRAFT CO LONG BEACH CALIF

DC-9 NOISE RETROFIT FEASIBILITY. VOLUME I. LOWER GOAL NOISE, PERFORMANCE AND COST EVALUATION, (U)

DESCRIPTIVE NOTE: FINAL REPT. JAN 72-MAY 73, NOV 73 188P DUNBAR,W. R. ;
REPT. NO. MDC-J4355A
CONTRACT: DOT-FA72WA-3116
MONITOR: FAA-RD 73-124-1

UNCLASSIFIED REPORT

DESCRIPTORS: *AIRCRAFT NOISE, *NOISE REDUCTION, *EXHAUST SYSTEMS, *CONTROL SYSTEMS, ENGINE NACELLES, TEST METHODS, STATIC TESTS, FLIGHT TESTING, PERFORMANCE(ENGINEERING), JET TRANSPORT PLANES, COST ANALYSIS, THRUST, ENDURANCE(GENERAL) (U)
IDENTIFIERS: DC-9 AIRCRAFT, EVALUATION (U)

THE REPORT COVERS THE WORK PERFORMED IN PHASE 1, GROUND TEST AND FLIGHT TEST, OF THE PROGRAM. EXHUAST SYSTEM DEVELOPMENT TESTS WERE CONDCUTED ON AN ENGINE STATIC TEST STAND TO EVALUATE THE LOWER GOAL EXHAUST SYSTEM. PROTOTYPE COMPONENTS OF THE LOWER GOAL NACELLE WERE DESIGNED AND FABRICATED. THE PROTOTYPE COMPONENTS WERE TESTED FOR EFFECT ON ENGINE PERFORMANCE AND NOISE, AND FOR EFFECT ON THE COMPATIBILITY WITH THE JT8D ENGINE. A 100-HOUR DURABILITY TEST WAS PERFORMED, CYCLING THE PROTOTYPE NACELLE THROUGH AN ACCELERATED SIMULATED DUTY MISSION. A COMPLETE LOADS AND STRESS ANALYSIS OF THE NACELLE/AIRFRAME STRUCTURE WAS PERFORMED. THE INLET WAS TESTED IN THE ICING TUNNEL FOR ANTI-ICING BLEED REQUIREMENTS AND WAS TESTED FOR STRUCTURAL CAPABILITY TO WITHSTAND HAIL AND BIRD IMPACT. A 20% THRUST COEFFICIENT MODEL WAS TESTED OVER A RANGE OF ENGINE PRESSURE RATIOS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 776 655 20/1 1/3
ADVISORY GROUP FOR AEROSPACE RESEARCH AND DEVELOPMENT PARIS (FRANCE)

TECHNICAL EVALUATION REPORT ON FLUID DYNAMICS PANEL SPECIALISTS MEETING ON NOISE MECHANISMS. (U)

DESCRIPTIVE NOTE: ADVISORY REPT.,
FEB 74 19P WILLIAMS,J. E. FFOWCS ;
REPT. NO. AGARD-AR-66

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: MEETING HELD AT BRUSSELS, BELGIUM, 19-21 SEP 73. PROCEEDINGS PUBLISHED AS REPT. NO. AGARD-CP-131. NATO FURNISHED.

DESCRIPTORS: *AIRCRAFT NOISE, *MEETINGS, FLOW FIELDS, TURBULENCE, NOISE REDUCTION, JET ENGINE NOISE, PROPAGATION, AERODYNAMIC NOISE (U)
IDENTIFIERS: NOISE SOURCES (U)

;CONTENTS: SOURCE IDENTIFICATION; THE INFLUENCE OF MEAN FLOW STRUCTURE ON THE GENERATION AND PROPAGATION OF SOUND; DISTINCTIVE LARGE EDDY STRUCTURES: ARE THEY DETERMINISTIC EVENTS; EXCESS NOISE; THE CONTROL OF JET NOISE; PROBLEM AREAS LIKELY TO BECOME MORE IMPORTANT; RECOMMENDATIONS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 777 569 1/3 20/1
FEDERAL AVIATION ADMINISTRATION WASHINGTON D C SYSTEMS RESEARCH AND DEVELOPMENT SERVICE

STOL NOISE PREDICTION AND ATTENUATION MODELS IN SUPPORT OF REGULATORY EFFORT. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
APR 74 86P POWER, JOSEPH K. ;
REPT. NO. FAA-RD-74-70

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT JOINT INTERNATIONAL SHORT COURSE; 'STOL AIRCRAFT TECHNOLOGY AND THE COMMUNITY', 22-26 APR 74.

DESCRIPTORS: *COMMERCIAL PLANES, *SHORT TAKEOFF AIRCRAFT, *AIRCRAFT NOISE, NOISE REDUCTION, AERODYNAMIC NOISE, JET ENGINE NOISE, AIRPLANE ENGINE NOISE, REGULATIONS, MODELS (U)

FOR COMMERCIAL STOL AIRCRAFT THE MOST CRITICAL DESIGN PARAMETER IS THE NOISE LEVEL. THIS PAPER DISCUSSES THE IMPACT OF EXISTING AND EXPECTED NOISE REGULATIONS ON THE DEVELOPMENT OF STOL AIRCRAFT. MODELS FOR STOL NOISE PREDICTION ARE PRESENTED, AS WELL AS NOISE REDUCTION MECHANISMS AND A RANKING OF V/STOL AIRCRAFT NOISE SOURCES. THE REPORT WAS PRESENTED AS PART OF SHORT COURSE IN STOL TECHNOLOGY 'STOL AIRCRAFT TECHNOLOGY AND THE COMMUNITY', JOINTLY SPONSORED BY THE UNIVERSITY OF TENNESSEE SPACE INSTITUTE AND THE TECHNICAL UNIVERSITY OF AACHEN, GERMANY. PARTICIPANTS INCLUDED NATIONALS OF GERMANY, CANADA, UNITED KINGDOM AS WELL AS INDUSTRY PARTICIPANTS THROUGHOUT THE U.S. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 777 895 1/3 20/1 21/5
DOUGLAS AIRCRAFT CO LONG BEACH CALIF

DC-9 NOISE RETROFIT FEASIBILITY. VOLUME II. UPPER GOAL NOISE, PERFORMANCE AND COST EVALUATION. (U)

DESCRIPTIVE NOTE: FINAL REPT. JAN-SEP 73, DEC 73 159P WHALLON,H. D. ;
REPT. NO. MDC-J4356
CONTRACT: DOT-FA72WA-3116
MONITOR: FAA-RD 73-124-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED NOV 73, AD-776 127.

DESCRIPTORS: *PASSENGER AIRCRAFT, *JET ENGINE NOISE, *NOISE REDUCTION, JET ENGINES, JET ENGINE NACELLES, EXPERIMENTAL DESIGN, EXHAUST NOZZLES, MODIFICATION, COST ANALYSIS (U)
IDENTIFIERS: DC-9 AIRCRAFT, *RETROFIT, JT8D-9 ENGINES (U)

THE WORK DESCRIBED IN THE REPORT COVERS THE WORK PERFORMED IN PHASE II OF THIS PROGRAM. THIS UPPER GOAL NACELLE CONFIGURATION STUDY WAS DIRECTED TOWARD NOISE REDUCTION GOALS OF 4, 4, 5, AND 10 EPNDB AT THE FEDERAL AVIATION REGULATIONS (FAR) PART 36 SIDELINE, TAKEOFF, CUTBACK, AND APPROACH MEASUREMENT CONDITIONS, RESPECTIVELY. EXHAUST SYSTEM DEVELOPMENT TESTS WERE CONDUCTED ON AN ENGINE STATIC TEST STAND TO EVALUATE THE UPPER GOAL EXHAUST SYSTEM. COMPONENTS OF THE UPPER GOAL NACELLE WERE DESIGNED AND FABRICATED. THE COMPONENTS WERE GROUND STATIC TESTED FOR EFFECT ON ENGINE PERFORMANCE AND NOISE. THE INITIAL DAISY-WITH-EJECTOR CONFIGURATION SHOWED GOOD ACOUSTICAL RESULTS BUT WITH UNACCEPTABLE PERFORMANCE LOSSES, EVEN AFTER A NUMBER OF MODIFICATIONS. AN ALTERNATIVE CONFIGURATION, USING THE SAME TEST HARDWARE BUT ADJUSTED TO PROVIDE QUIETING BY ENLARGING THE NOZZLE AREA, ESSENTIALLY MET ACOUSTICAL AND PERFORMANCE REQUIREMENTS. STATIC TESTS DEMONSTRATED PREDICTED INFLIGHT NOISE REDUCTIONS OF 4.7, 4.0, 3.9, AND 10.1 EPNDB AT THE SIDELINE, TAKEOFF, CUTBACK, AND APPROACH MEASUREMENT CONDITIONS, RESPECTIVELY, WHICH APPROXIMATE THE FAA UPPER GOAL VALUES. (MODIFIED AUTHOR ABSTRACT) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 782 165 21/5 20/1
CALSPAN CORP BUFFALO N Y

EFFECTS OF FINITE DUCT LENGTH AND BLADE CHORD ON NOISE GENERATION BY A ROTATING BLADE ROW, (U)

JUN 74 17P LORDI,J. A. ;HOMICZ,G. F. ;REHM,R. G. ;
CONTRACT: F44620-69-C-0130
PROJ: AF-9781
TASK: 978102
MONITOR: AFOSR TR-74-1096

UNCLASSIFIED REPORT
AVAILABILITY: PAPER COPY AVAILABLE FROM AIAA FLUID AND PLASMA DYNAMICS CONFERENCE (7TH), HELD IN PALO ALTO, CALIF., ON 17-19 JUN 74, PC $2.00/MF $1.00. PAPER NO. AIAA-74-555.

DESCRIPTORS: *TURBOFAN ENGINES, *JET ENGINE NOISE, *COMPRESSOR NOISE, COMPRESSOR BLADES, TURBINE BLADES, NOISE POLLUTION, DUCTS, NOISE REDUCTION, NUMERICAL ANALYSIS (U)

A THEORETICAL STUDY OF DISCRETE-TONE NOISE GENERATION BY TRANSONIC FAN OR COMPRESSOR BLADE ROWS IS PRESENTED. A LINEARIZED ANALYSIS IS MADE OF THE THREE-DIMENSIONAL DISTURBANCE FIELD PRODUCED BY A ROTOR LOCATED AT A FINITE DISTANCE FROM THE OPEN END OF AN UNFLANGED SEMI-FINITE DUCT. THE PRESENCE OF A UNIFORM MEAN FLOW IS ACCOUNTED FOR AND THE SOUND FIELD IS RELATED TO THE BLADE THICKNESS AND LOADING DISTRIBUTIONS. THE DISTURBANCES PRODUCED BY THE BLADE THICKNESS AND LOADING ARE OBTAINED BY SUPERPOSITION OF SOLUTIONS FOR ROTATING SOURCES AND DIPOLES. THE SOLUTIONS FOR POINT SINGULARITIES IN THE PRESENCE OF A MEAN FLOW ARE OBTAINED BY A TRANSFORMATION OF THE CORRESPONDING SOLUTIONS IN A MEDIUM AT REST. THE TRANSFORMED PROBLEM IS SOLVED BY EXTENDING CLASSICAL RESULTS FOR THE REFLECTION AND RADIATION OF ACOUSTIC WAVES FROM THE OPEN END OF AN UNFLANGED DUCT TO ACCOUNT FOR SOURCES IN THE FIELD. (MODIFIED AUTHOR ABSTRACT) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 20M09

AD- 783 234 1/3 20/1
AIR FORCE MATERIALS LAB WRIGHT-PATTERSON AFB OHIO

CONSTRAINED LAYER TREATMENTS FOR NOISE CONTROL IN A HELICOPTER. (U)

DESCRIPTIVE NOTE: FINAL REPT. SEP-DEC 72,
MAR 74 53P JONES,DAVID I. G. ;
REPT. NO. AFML-TR-73-305
PROJ: AF-7351
TASK: 735106
MONITOR: GIDEP 347.15.00.00-67-13

UNCLASSIFIED REPORT

DESCRIPTORS: *ACOUSTIC INSULATION, *AIRCRAFT NOISE, *AIRCRAFT CABINS, *HELICOPTERS, DAMPING, NOISE CONTROL, RESONANCE, VIBRATION, FLIGHT TESTING, HOVERING, FOAM (U)
IDENTIFIERS: HH-53C AIRCRAFT, H-53 AIRCRAFT (U)

THE REPORT DESCRIBES SOME OF THE RESULTS OF AN INVESTIGATION TO EVALUATE THE EFFECT OF CONSTRAINED LAYER DAMPING TREATMENTS ON CABIN NOISE LEVELS IN AN HH-53C HELICOPTER. VIBRATION AND NOISE LEVELS WERE MEASURED FOR VARIOUS FLIGHT CONDITIONS, INCLUDING HOVER, FORWARD FLIGHT AND BANKED, AND IN EACH CASE IT WAS OBSERVED THAT THE DAMPING TREATMENT REDUCED VIBRATION AND NOISE LEVELS IN CERTAIN FREQUENCY BANDS WITHIN WHICH NATURAL MODES OF VIBRATION WERE STRONGLY EXCITED. GROUND VIBRATION TESTS UNDER ARTIFICIAL EXCITATION AND LABORATORY VIBRATION TESTS ON SIMPLER BUT RELATED STRUCTURES WERE ALSO CONDUCTED TO FURTHER UNDERSTAND THE PHENOMENA INVOLVED AND TO DEVELOP APPROPRIATE DAMPING TREATMENTS FOR BROAD TEMPERATURE RANGE NOISE CONTROL APPLICATIONS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 784 841 1/5 13/2
ENVIRONMENTAL HEALTH LAB MCCLELLAN AFB CALIF

COMMUNITY NOISE SURVEY-OFFUTT AFB, NEBRASKA, (U)

JUL 73 61P BURNETT, RONALD D. ;
REPT. NO. EHL-M-73M-7
PROJ: EHL-M-NAF-315

UNCLASSIFIED REPORT

DESCRIPTORS: *AIR FORCE FACILITIES, *LANDING FIELDS, *AIRCRAFT NOISE, URBAN AREAS, LAND AREAS, URBAN PLANNING, NOISE POLLUTION (U)
IDENTIFIERS: NOISE POLLUTION, LOCAL STUDIES (U)

THE COMMUNITY NOISE INTRUSION RESULTING FROM OFFUTT AFB KC 135A TAKEOFFS WAS EVALUATED AT 25 SITES IN AND AROUND OFFUTT AFB. INCLUDED IN THE EVALUATION WAS AN AREA CURRENTLY BEING CONSIDERED FOR THE CONSTRUCTION OF A MULTIMILLION DOLLAR RESIDENTIAL-INDUSTRIAL COMPLEX. NOISE LEVELS (DBA) AND THEIR DURATION WERE DETERMINED. THESE DATA WERE USED TO ESTIMATE COMPOSITE NOISE RATINGS (CNR'S), NOISE EXPOSURE FORECASTS (NEF'S) AND COMMUNITY NOISE EQUIVALENT LEVELS (CNEL'S) AT EACH MEASUREMENT SITE. EXPECTED COMMUNITY RESPONSE AND COMPATIBLE LAND USE CRITERIA ARE DISCUSSED IN RELATION TO THE VARIOUS NOISE RATING VALUES (DBA'S, CNR'S, NEF'S, AND CNEL'S) CALCULATED FOR EACH SITE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M0

AD- 785 028 21/5 20/1
PRINCETON UNIV N J DEPT OF AEROSPACE AND MECHANICAL SCIENCES

RESEARCH ON NOISE GENERATED BY DUCTED AIR-FUEL COMBUSTION SYSTEMS. (U)

DESCRIPTIVE NOTE: ANNUAL REPT. NO. 3, MAR 73-FEB 74, JUN 74 30P PLETT,E. G. ;CHIU,H. H. ;SUMMERFIELD,M. ;
CONTRACT: N00014-67-A-0151-0029

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO ANNUAL REPT. NO. 2, AD-767 337

DESCRIPTORS: *GAS TURBINES, *JET ENGINE NOISE, SOURCES, COMBUSTORS, TURBOMACHINERY, COMBUSTION, DUCTED BODIES, JET FLAMES, MATHEMATICAL MODELS (U)
IDENTIFIERS: *NOISE GENERATION, *NOISE SOURCES (U)

A TWO-PRONGED APPROACH TO THE STUDY OF NOISE GENERATION BY COMBUSTION IN A CONFINED FLOW SYSTEM SIMILAR TO A JET ENGINE CONFIGURATION, HAS BEEN FOLLOWED. ONE ASPECT DEALS WITH THE MECHANISMS OF NOISE GENERATION BY COMBUSTION; THE OTHER ASPECT DEALS WITH THE EFFECT OF CONFINEMENT ON THE NOISE GENERATION AND RADIATING PROPERTIES OF AN UNSTEADY COMBUSTION-DUCT-FLOW INTERACTION. MECHANISMS OF SOUND GENERATION, AMPLIFICATION AND SCATTERING BY VARIOUS COMBUSTION SYSTEMS HAVE BEEN STUDIED ON THEORETICAL BASES COMPATIBLE WITH THE CONTEMPORARY UNDERSTANDING OF UNSTEADY BURNING PROCESSES. SOUND GENERATION MECHANISMS ARE CLASSIFIED INTO CATEGORIES RELATING TO THE SMITH-KILHAM EMISSION MECHANISM AND THE TURBULENT DRIVEN RIJKE-RIESS EMISSION MECHANISM. (MODIFIED AUTHOR ABSTRACT) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 785 360 20/1 1/3 15/5
BOLT BERANEK AND NEWMAN INC CANOGA PARK CALIF

COMMUNITY NOISE EXPOSURE RESULTING FROM AIRCRAFT OPERATIONS: COMPUTER PROGRAM OPERATOR'S MANUAL. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUL 74 217P REDDINGIUS,NICOLAAS H. ;
REPT. NO. BBN-2582
CONTRACT: F33615-74-C-4160
PROJ: AF-7231
TASK: 723104
MONITOR: AMRL TR-73-108

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *MILITARY FACILITIES, *AIRCRAFT NOISE, FLIGHT, NOISE POLLUTION, RUNWAYS, NAVIGATIONAL AIDS, FORTRAN, USER NEEDS, COMPUTER PROGRAMMING (U)
IDENTIFIERS: *NOISE EXPOSURE, GROUND RUNUP, FORTRAN 4 PROGRAMMING LANGUAGE (U)

A USER ORIENTED DESCRIPTION OF A COMPUTER PROGRAM TO CALCULATE COMMUNITY NOISE EXPOSURE DUE TO AIRCRAFT OPERATIONS IS GIVEN. FORMAL DEFINITION OF ALL ALLOWABLE CARD SEQUENCES AND EXAMPLES OF CODING FOR ALL TYPES OF AIRCRAFT OPERATIONS ARE PRESENTED AS WELL AS GUIDELINES FOR EFFICIENT USE. THE PROGRAM WHICH IS ENTIRELY WRITTEN IN FORTRAN 4 PRODUCES PRINTED OUTPUT AS WELL AS OUTPUT COMPATIBLE WITH THE CALCOMP GPCP CONTOURING PACKAGE. A DISCUSSION OF THE ARCHITECTURE OF THE PROGRAM AND THE INTERPRETATION OF THE OUTPUT CAN BE FOUND IN COMPANION VOLUMES AMRL-TR-109 AND AMRL-TR-73-105, RESPECTIVELY. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 785 485 21/2 20/1 21/5
GEORGIA INST OF TECH ATLANTA SCHOOL OF AEROSPACE ENGINEERING

COMBUSTION GENERATED NOISE IN TURBOPROPULSION SYSTEMS. (U)

DESCRIPTIVE NOTE: INTERIM REPT. JUN 73-MAY 74, JAN 74 69P STRAHLE,W. C. ; SHIVASHANKARA,B. N. ;HANDLEY,J. C. ; MUTHUKRISHNAN,M. ;
CONTRACT: AF-AFOSR-2365-72
PROJ: AF-9711
TASK: 971102
MONITOR: AFOSR TR-74-1438

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED 24 JUL 73, AD-768 615.

DESCRIPTORS: *JET ENGINE NOISE, *COMBUSTION, *JET FLAMES, POWER SPECTRA, ACOUSTICS, FAR FIELD, COMBUSTION STABILITY, NOISE POLLUTION, SCALING FACTORS (U)
IDENTIFIERS: *COMBUSTION NOISE (U)

CONTINUATION OF EXPERIMENTAL AND THEORETICAL WORK ON THE PROBLEM OF COMBUSTION GENERATED NOISE IN TURBOPROPULSION SYSTEMS IS PRESENTED. TASKS COMPLETED DURING THE CURRENT PERIOD HAVE BEEN (A) EXPERIMENTAL AND THEORETICAL CORRELATION OF NOISE POWER AND SPECTRA FROM OPEN PREMIXED FLAMES OF PROPANE, PROPYLENE, ETHYLENE AND ACETYLENE-AIR, (B) CROSSCORRELATION OF C2 EMISSION WITH THE FAR FIELD ACOUSTIC PRESSURE, AND (C) EXPERIMENTAL AND THEORETICAL INVESTIGATION OF DUCTING EFFECTS UPON THE NOISE RADIATING CAPABILITY OF THE FLAME. THE NOISE RADIATION FROM SIMPLE FLAME TYPES IS NOW UNDERSTOOD WITH SUFFICIENT THEORETICAL AND EXPERIMENTAL DETAIL THAT ESTIMATES MAY BE MADE FOR COMBUSTION NOISE IN TURBOPROPULSION SYSTEMS. (MODIFIED AUTHOR ABSTRACT) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 786 467 20/1 21/5 1/3
GENERAL ELECTRIC CO CINCINNATI OHIO AIRCRAFT ENGINE GROUP

SUPERSONIC JET EXHAUST NOISE INVESTIGATION. (U)

DESCRIPTIVE NOTE: INTERIM REPT. DEC 72-DEC 73, JUN 74 282P KNOTT,PAUL R. ;
CONTRACT: F33615-73-C-2031
PROJ: AF-3066
TASK: 306614
MONITOR: AFAPL TR-74-25

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *SUPERSONIC AIRCRAFT, *JET ENGINE NOISE, *NOISE REDUCTION, EXHAUST NOZZLES, AERODYNAMIC NOISE, FLOW FIELDS, ACOUSTIC SIGNATURES, POWER SPECTRA, TURBULENCE (U)
IDENTIFIERS: *NOISE SUPPRESSION (U)

THIS PROGRESS REPORT SUMMARIZES THE MAJOR THEORETICAL AND EXPERIMENTAL EFFORTS PERFORMED DURING THE FIRST YEAR OF A TWO-YEAR PROGRAM SPONSORED BY THE AIR FORCE AND THE DEPARTMENT OF TRANSPORTATION ON SUPERSONIC JET EXHAUST NOISE. THE OVERALL OBJECTIVE OF THE PROGRAM IS TO DEVELOP THE TECHNOLOGY TO SIGNIFICANTLY REDUCE SUPERSONIC AIRCRAFT PROPULSION SYSTEM NOISE WITH MINIMUM ASSOCIATED PERFORMANCE AND WEIGHT PENALTIES. TO REACH THE OBJECTIVES OF THIS PROGRAM A VARIED AND COMPREHENSIVE RESEARCH PROGRAM IS BEING CARRIED OUT TO DEVELOP THE BASIC THEORY AND EXPERIMENTAL METHODS FOR UNDERSTANDING AND QUANTIZING THE ACOUSTIC CHARACTERISTICS OF SIMPLE SUPERSONIC JETS FOR A RANGE OF VELOCITIES AND TEMPERATURES TYPICAL OF PRESENT AND FUTURE MILITARY AND COMMERCIAL SUPERSONIC AIRCRAFT PROPULSION SYSTEMS. (MODIFIED AUTHOR ABSTRACT) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 786 612 20/1 1/5
MITRE CORP MCLEAN VA

AIRCRAFT SOUND DESCRIPTION SYSTEM (ASDS) APPLICATION PROCEDURES. VOLUME I. OVERVIEW, (U)

MAR 74 18P GOLDMAN,DONALD ;MAGINNIS, FRANCIS X. ;
REPT. NO. MTR-6616-VOL-1
CONTRACT: DOT-FA69NS-162
MONITOR: FAA-EQ 74-2-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-786 613 AND REPORT DATED MAR 73, AD-758 588.

DESCRIPTORS: *AIRPORTS, *AIRCRAFT NOISE, NOISE POLLUTION, PERIODIC VARIATIONS, EXPOSURE(PHYSIOLOGY), ACOUSTIC MEASUREMENT, AIRCRAFT LANDINGS, TAKEOFF, DATA ACQUISITION (U)
IDENTIFIERS: *NOISE EXPOSURE, *AIRCRAFT SOUND DESCRIPTION SYSTEMS, *EXPOSURE TIME, SCENARIOS, *NOISE LEVELS (U)

THE AIRCRAFT SOUND DESCRIPTION SYSTEM (ASDS) IS A METHOD OF DESCRIBING AIRCRAFT NOISE. IT HAS BEEN ESTABLISHED AS THE BASIC FAA TECHNIQUE FOR PREDICTING COMMUNITY NOISE EXPOSURE CAUSED BY AIRCRAFT OPERATIONS. THIS REPORT (IN FOUR VOLUMES) CONTAINS A DESCRIPTION OF THE MANUAL AND COMPUTER TECHNIQUES FOR APPLYING ASDS AS WELL AS A CURRENT SET OF NOISE EXPOSURE CONTOURS. IN THIS VOLUME, A GENERAL INTRODUCTION TO THE APPLICATION PROCEDURES IS PRESENTED. THE MATERIAL IN SUBSEQUENT VOLUMES IS DESCRIBED, AND THE REQUIRED DATA PREPARATION AND BASIC METHODOLOGY USED IN PERFORMING AN ASDS APPLICATION ARE PRESENTED. (MODIFIED AUTHOR ABSTRACT) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 786 613 20/1 1/5
MITRE CORP MCLEAN VA

AIRCRAFT SOUND DESCRIPTION SYSTEM (ASDS) APPLICATION PROCEDURES. VOLUME II. MANUAL APPLICATION PROCEDURES, (U)

MAR 74 71P GOLDMAN,DONALD ;MAGINNIS, FRANCIS X. ;
REPT. NO. MTR-6616-VOL-2
CONTRACT: DOT-FA69NS-162
MONITOR: FAA-EQ 74-2-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 1, AD-786 612, VOLUME 3, AD-786 614 AND REPORT DATED MAR 73, AD-758 588.

DESCRIPTORS: *AIRPORTS, *AIRCRAFT NOISE, NOISE POLLUTION, PERIODIC VARIATIONS, EXPOSURE(PHYSIOLOGY), ACOUSTIC MEASUREMENT, AIRCRAFT LANDINGS, TAKEOFF, DATA PROCESSING (U)
IDENTIFIERS: *NOISE EXPOSURE, *EXPOSURE TIME, *NOISE LEVELS, *AIRCRAFT SOUND DESCRIPTION SYSTEMS, SCENARIOS (U)

THE AIRCRAFT SOUND DESCRIPTION SYSTEM (ASDS) IS A METHOD OF DESCRIBING AIRCRAFT NOISE. IT HAS BEEN ESTABLISHED AS THE BASIC FAA TECHNIQUE FOR PREDICTING COMMUNITY NOISE EXPOSURE CAUSED BY AIRCRAFT OPERATIONS. THIS REPORT (IN FOUR VOLUMES) IS A DESCRIPTION OF THE MANUAL AND COMPUTER TECHNIQUES FOR APPLYING ASDS AS WELL AS A CURRENT SET OF NOISE EXPOSURE CONTOURS. THIS VOLUME PRESENTS THE MANUAL PROCEDURE FOR DEVELOPING AN AIRCRAFT SOUND DESCRIPTION SYSTEM (ASDS) APPLICATION IN A STEP-BY-STEP FASHION. THIS PROCEDURE DEVELOPS THE AIRCRAFT NOISE EXPOSURE VALUES AND THE 'SITUATION INDEX.' DATA FORMS AND PICTORIAL LAYOUTS ARE USED TO ILLUSTRATE THE PROCEDURE. A SAMPLE APPLICATION IS PRESENTED TO EXPLAIN THE DETAILS OF EACH STEP. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 786 615 20/1 1/5
MITRE CORP MCLEAN VA

AIRCRAFT SOUND DESCRIPTION SYSTEM (ASDS)
APPLICATION PROCEDURES. VOLUME IV.
COMPUTER APPLICATION PROCEDURES, (U)

MAR 74 124P GOLDMAN,DONALD ;MAGINNIS,
FRANCIS X. ;
REPT. NO. MTR-6616-VOL-4
CONTRACT: DOT-FA69NS-162
MONITOR: FAA-EQ 74-2-4

UNCLASSIFIED REPORT
AVAILABILITY: AVAILABLE IN MICROFICHE ONLY.
SUPPLEMENTARY NOTE: SEE ALSO VOLUME 3, AD-786 614 AND REPORT DATED MAR 73, AD-758 588.

DESCRIPTORS: *AIRPORTS, *AIRCRAFT NOISE, NOISE POLLUTION, PERIODIC VARIATIONS, EXPOSURE(PHYSIOLOGY), ACOUSTIC MEASUREMENT, AIRCRAFT LANDINGS, TAKEOFF, COMPUTER APPLICATIONS, COMPUTER PROGRAMS (U)
IDENTIFIERS: *NOISE EXPOSURE, *EXPOSURE TIME, *NOISE LEVELS, *AIRCRAFT SOUND DESCRIPTION SYSTEMS, SCENARIOS (U)

THE AIRCRAFT SOUND DESCRIPTION SYSTEM (ASDS) IS A METHOD OF DESCRIBING AIRCRAFT NOISE. IT HAS BEEN ESTABLISHED AS THE BASIC FAA TECHNIQUE FOR PREDICTING COMMUNITY NOISE EXPOSURE CAUSED BY AIRCRAFT OPERATIONS. THIS REPORT (IN FOUR VOLUMES) IS A DESCRIPTION OF THE MANUAL AND COMPUTER TECHNIQUES FOR APPLYING ASDS AS WELL AS A CURRENT SET OF NOISE EXPOSURE CONTOURS. THIS VOLUME PRESENTS COMPUTER APPLICATION PROCEDURES FOR ASDS. A COMPUTER PROGRAM PACKAGE THAT IMPLEMENTS THE ASDS METHODOLOGY IS DESCRIBED. THE PACKAGE CONSISTS OF A THREE PROGRAM SEQUENCE WHICH PERFORMS AN ASDS ANALYSIS FOR A GIVEN SCENARIO, AND TWO DATA REDUCTION PROGRAMS WHICH ASSIST IN ANALYZING THE NOISE EXPOSURE DATA PRODUCED BY THE ANALYSIS SEQUENCE. INSTRUCTIONS FOR PREPARING THE REQUIRED INPUT DATA AND RUNNING THE PROGRAMS ARE PRESENTED WITH ILLUSTRATIVE EXAMPLES, AND THE VARIOUS OUTPUTS PRODUCED BY THE PROGRAMS ARE DESCRIBED. (MODIFIED AUTHOR ABSTRACT) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 787 192 20/1 20/4
LOCKHEED-GEORGIA CO MARIETTA

THE GENERATION AND RADIATION OF SUPERSONIC JET EXHAUST NOISE: A PROGRESS REPORT ON STUDIES OF JET NOISE GENERATION AND RADIATION, TURBULENCE STRUCTURE AND LASER VELOCIMETRY. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT. NOV 72-FEB 74, JUN 74 190P PLUMBLEE,HARRY E. , JR;
REPT. NO. LG74ER0010
CONTRACT: F33615-73-C-2032
PROJ: AF-3066
TASK: 306614
MONITOR: AFAPL TR-74-24

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *JET PLANE NOISE, *SUPERSONIC AIRCRAFT, *EXHAUST GASES, JET FLOW, NOISE GENERATORS, THEORY, RADIATION, ACOUSTIC WAVES, LASER VELOCIMETERS, EXPERIMENTAL DATA, MATHEMATICAL MODELS, TEST METHODS, ANECHOIC CHAMBERS, TEST FACILITIES, HIGH TEMPERATURE, VELOCITY, TURBULENCE (U)

THE REPORT SUMMARIZES THE MAJOR THEORETICAL AND EXPERIMENTAL EFFORTS PERFORMED DURING THE FIRST YEAR OF A TWO-YEAR PROGRAM DEALING WITH SUPERSONIC JET NOISE. SPECIFIC TECHNICAL RESULTS ARE PRESENTED ON THE RADIATION OF SOUND SOURCES IN A JET SHEAR LAYER, A THEORETICAL STUDY OF THE LARGE SCALE NOISE PRODUCING STRUCTURE OF JETS, THE DESIGN, CONSTRUCTION AND CALIBRATION OF A HIGH TEMPERATURE ANECHOIC FACILITY FOR JET NOISE EXPERIMENTS, A SERIES OF HIGH TEMPERATURE SUBSONIC AND SUPERSONIC JET NOISE EXPERIMENTS, AND THE DESIGN AND DEVELOPMENT OF A LASER VELOCIMETER FOR THE MEASUREMENT OF MEAN FLOW VELOCITY AND ORTHOGONAL COMPONENTS OF TURBULENCE VELOCITY. (MODIFIED AUTHOR ABSTRACT) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 888 802 20/1 1/3
PATROL ASW DEVELOPMENT GROUP NORFOLK VA

P-3C AMBIENT AIRCRAFT NOISE, (U)

JUN 71 46P BORTHWICK,R. B. ;
REPT. NO. PATASWDEVGRU-44

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIRCRAFT NOISE, *PATROL AIRCRAFT), (*ANTISUBMARINE AIRCRAFT, AIRCRAFT NOISE), PROPELLER NOISE, HEARING, STRESS(PSYCHOLOGY), FATIGUE(PHYSIOLOGY), AVIATION MEDICINE (U)
IDENTIFIERS: P-3 AIRCRAFT, P-3C AIRCRAFT (U)

THE PURPOSE OF THE REPORT IS TO PROVIDE THE FLEET USER WITH INFORMATION REGARDING AMBIENT AIRCRAFT NOISE LEVELS OCCURRING IN THE AUDIO SPECTRUM. IT ALSO SERVES AN ADDITIONAL PURPOSE IN PROVIDING TECHNICAL AGENCIES AND DEVELOPMENT LABORATORIES WITH INFORMATION REGARDING EXISTING AIRCRAFT SYSTEMS. THE ULTIMATE OBJECTIVE, FOR EITHER FLEET OR DEVELOPMENT COMMUNITIES, IS TO PROVIDE A BASE CASE FROM WHICH TO PROCEED IN ANY OF THEIR STUDIES AND ESTABLISHMENT OF AMBIENT AIRCRAFT NOISE LEVELS IN FUTURE AIRBORNE SYSTEMS. THE EQUIPMENT USED PROVIDES A VERY ACCURATE FREQUENCY IDENTIFICATION TO SOUND PRESSURE LEVELS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 891 216 20/1 9/2
HYDROSPACE RESEARCH CORP ROCKVILLE MD

COMPUTER PROGRAMS FOR UNDERWATER SOUND FIELDS DUE TO AIRBORNE SOURCES. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL NOTE,
JAN 72 64P WATERS,JOHN F. ;
REPT. NO. HRC-TN-144
CONTRACT: N00014-70-C-0301

UNCLASSIFIED REPORT

DESCRIPTORS: (*UNDERWATER SOUND, *AIRCRAFT NOISE), (*COMPUTER PROGRAMS, UNDERWATER SOUND), SOUND TRANSMISSION, INTERFACES, DATA PROCESSING, CURVE FITTING, GRAPHICS, NUMERICAL ANALYSIS (U)
IDENTIFIERS: AIR WATER INTERACTIONS, RAY TRACING, SOUND FIELDS (U)

AN AIRCRAFT FLYING OVER WATER PRODUCES A SIGNIFICANT UNDERWATER SOUND FIELD IN THE WATER DIRECTLY BENEATH IT. ACOUSTIC RAY THEORY CAN BE USED TO OBTAIN A USEFUL APPROXIMATE DESCRIPTION OF THE UNDERWATER SOUND FIELD IN TERMS OF SOUND PRESSURE LEVELS. DETAILS OF THE THEORY ARE PRESENTED. COMPUTER PROGRAMS WHICH IMPLEMENT THE THEORY ARE DOCUMENTED. THE RESULTS INCLUDE TIME HISTORIES OF ACOUSTIC SIGNAL ANGLES OF ARRIVAL AT THE UNDERWATER RECEIVER; TIME HISTORIES OF SOUND PRESSURE LEVELS RECEIVED AT VARIOUS DEPTHS; AND EQUIPRESSURE CONTOUR DESCRIPTIONS OF THE UNDERWATER SOUND FIELD. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 893 426 20/1 1/3
TENNESSEE UNIV SPACE INST TULLAHOMA

LOW SPEED AERODYNAMICS FOR ULTRA-QUIET FLIGHT. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. JUL 70-MAY 71, MAR 72 169P KROEGER,RICHARD A. ;GRUSHKA, HEINZ D. ;HELVEY,TIBOR C. ;
CONTRACT: F33615-70-C-1762
PROJ: AF-1471
TASK: 147102
MONITOR: AFFDL TR-71-75

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIRCRAFT NOISE, REDUCTION), (*AERODYNAMIC NOISE, REDUCTION), AERODYNAMIC CHARACTERISTICS, FLIGHT, VORTEX GENERATORS, WINGS, POROUS MATERIALS, DESIGN, RECONNAISSANCE AIRCRAFT (U)
IDENTIFIERS: O-3 AIRCRAFT, YO-3 AIRCRAFT (U)

A COMBINED AERODYNAMICS, ACOUSTICS AND BIONICS STUDY WAS CONDUCTED IN AN ATTEMPT TO DISCOVER NOVEL MECHANISMS TO REDUCE THE NOISE ASSOCIATED WITH AIRCRAFT FLIGHT. THE STRIGIFORMES ORDER OF BIRDS, SELECTED IN THE BIONICS EFFORT AS POSSESSING CHARACTERISTICS OF SILENT FLIGHT, WAS STUDIED EXTENSIVELY. THREE MECHANISMS PRODUCING THE POTENTIAL FOR ACOUSTIC QUIETING WERE DISCOVERED AS A RESULT OF THIS STUDY. THESE ARE: VORTEX SHEET GENERATORS, COMPLIANT SURFACES, AND DISTRIBUTED WING POROSITY. AN EXPERIMENTAL PROGRAM AIMED AT INITIATING FULL SCALE FLIGHT EVALUATION OF THESE CONCEPTS WAS OUTLINED. THE DETAILED RESULTS OF THESE STUDIES ARE INCLUDED. THE REPORT DEVELOPS DESIGN CONCEPTS WHICH MAY BE APPLIED TO OBTAIN ULTRA QUIET FLIGHT FOR CONVERT/RECONNAISSANCE/SURVEILLANCE AIRCRAFT SUCH AS THE YO-3. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 900 405 20/1 1/3 12/1 9/2
WYLE LABS EL SEGUNDO CALIF

PREDICTION METHODS FOR NEAR FIELD NOISE ENVIRONMENTS OF VTOL AIRCRAFT. (U)

DESCRIPTIVE NOTE: FINAL REPT. FEB 69-OCT 71, MAY 72 244P SUTHERLAND,LOUIS C. ;BROWN, DAVID ;
REPT. NO. WR-71-19
CONTRACT: F33615-69-C-1407
PROJ: AF-1471
TASK: 147102
MONITOR: AFFDL TR-71-180

UNCLASSIFIED REPORT

DESCRIPTORS: (*VERTICAL TAKEOFF AIRCRAFT, *AIRCRAFT NOISE), (*NOISE, MATHEMATICAL PREDICTION), (*MATHEMATICAL MODELS, NOISE), AIRPLANE ENGINE NOISE, JET ENGINE NOISE, JET PLANE NOISE, PROPELLER NOISE, AERODYNAMIC NOISE, WHITE NOISE, SONIC BOOM, AIRCRAFT LANDINGS, TAKEOFF, FATIGUE(MECHANICS), AIRFRAMES, VIBRATION, GROUND EFFECT, SOUND TRANSMISSION, REFLECTIVITY, FREQUENCY, BUFFETING, ROTOR BLADES(ROTARY WINGS), REDUCTION, INTENSITY, ACOUSTIC PROPERTIES, GAS FLOW, SHOCK WAVES, TURBULENCE, VORTICES, GAS TURBINES, WALLS, FANS, JETS, POWER SPECTRA, AERODYNAMIC LOADING, LIFT, BLADE AIRFOILS, ANECHOIC CHAMBERS, COMPUTER PROGRAMS, JET AIRCRAFT, HELICOPTERS, BIBLIOGRAPHIES (U)
IDENTIFIERS: J-57 ENGINES, J-57-P-21 ENGINES, NEAR FIELD NOISE, SOUND CONTOURS, STORED ROTORS (U)

THIS REPORT ESTABLISHES A CONSISTENT SET OF PREDICTION METHODS WHICH MAY BE USED TO ESTIMATE NEAR FIELD NOISE LEVELS FOR JET POWERED AND ROTOR/PROPELLER POWERED VTOL AIRCRAFT OPERATING IN CLOSE PROXIMITY TO THE GROUND. THE METHODS PROVIDED UTILIZE AVAILABLE THEORY AUGMENTED EXTENSIVELY BY EXPERIMENTAL DATA WHICH WAS AVAILABLE OR WAS OBTAINED DURING THE PROGRAM. THE NOISE PREDICTION METHODS PRESENTED WILL ALLOW AN ANALYSIS OF NEAR FIELD ENVIRONMENTS OF VTOL AIRCRAFT USING A SIMPLIFIED PROCEDURE SUITABLE FOR MANUAL CALCULATIONS. THE EXPERIMENTAL EFFORT CARRIED OUT IN THE PROGRAM CONSISTED OF NOISE MEASUREMENTS IN THE NEAR FIELD OF A MODEL PROPELLER AND A SUBSONIC JET IN A FREE AND VERTICAL CONFIGURATION. GROUND REFLECTION CORRECTION FACTORS FOR A SIMPLE SOURCE ARE TABULATED ALONG WITH THE COMPUTER PROGRAM LISTING. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 901 273 1/3 20/1
KAMAN AEROSPACE CORP BLOOMFIELD CONN

TEST AND EVALUATION OF A QUIET HELICOPTER CONFIGURATION HH-43B. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
JAN 72 110P BOWES,MICHAEL A. ;
REPT. NO. R-914
CONTRACT: DAAJ02-70-C-0004, ARPA ORDER-1322
MONITOR: USAAMRDL TR-71-31

UNCLASSIFIED REPORT

DESCRIPTORS: (*HELICOPTERS, AERODYNAMIC CONFIGURATIONS), (*AIRCRAFT NOISE, ATTENUATION), ACOUSTIC INSULATION, DAMPING, TESTS, CONTROL SYSTEMS, HELICOPTER ENGINES, HELICOPTER ROTORS, ROTOR BLADES(ROTARY WINGS), VELOCITY, DRIVES, VIBRATION, ENGINE AIR SYSTEMS COMPONENTS, FLIGHT TESTING, LEVEL FLIGHT, PERFORMANCE(ENGINEERING), DRIVE SHAFTS (U)
IDENTIFIERS: AIRCRAFT MODIFICATIONS, *HH-43B AIRCRAFT, H-43 AIRCRAFT, *QUIET HELICOPTERS, AIRCRAFT, QUIET, ROTOR BLADE TIPS (U)

A SERIES OF NOISE CONTROL MODIFICATIONS WAS MADE TO THE HH-43B HELICOPTER. EACH MODIFICATION WAS EVALUATED BY DIRECT COMPARISON OF ACOUSTIC SIGNATURES OF MODIFIED AND UNMODIFIED CONFIGURATIONS. NOISE CONTROL MODIFICATIONS TO THE AIRCRAFT ENGINE, DRIVE AND ROTOR SYSTEMS WERE USED AND ARE EVALUATED. TESTING WAS PERFORMED ON TEN AIRCRAFT CONFIGURATIONS. THE NOISE CONTROL MODIFICATIONS RESULTED IN SUBSTANTIAL REDUCTIONS IN FLYOVER NOISE. ALL OCTAVE BANDS OF INTEREST, I.E., 63 HZ TO 4000 HZ, WERE SIGNIFICANTLY REDUCED. THE ROTOR SYSTEM WAS THE DOMINANT NOISE SOURCE, IN LEVEL FLIGHT, DOMINATING EACH OCTAVE BAND IN THE MODIFIED AIRCRAFT'S AUDIBLE SPECTRUM, I.E., WITH CENTER FREQUENCIES FROM 31.5 HZ TO 8000 HZ. THIS NOISE SOURCE WAS REDUCED THROUGH CHANGES IN ROTOR BLADE GEOMETRY AND REDUCTION IN BLADE TIP SPEED. ALL PROGRAM NOISE SIGNATURE REDUCTION GOALS WERE MET OR EXCEEDED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 902 828 20/1 5/10
BOLT BERANEK AND NEWMAN INC CANOGA PARK CALIF

PREDICTING AURAL DETECTABILITY OF AIRCRAFT IN NOISE BACKGROUNDS. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. JAN-DEC 71, JUL 72 69P FIDELL,SANFORD A. ;PEARSONS, KARL S. ;BENNETT,RICARDA L. ;
REPT. NO. BBN-2202
CONTRACT: F33615-71-C-1220
PROJ: AF-1471
TASK: 147102
MONITOR: AFFDL TR-72-16

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIRCRAFT NOISE, *AUDITORY PERCEPTION), PSYCHOACOUSTICS, DETECTION, OBSERVATION AIRCRAFT, RECONNAISSANCE AIRCRAFT, BACKGROUND, MASKING, ATTENTION, AUDITORY ACUITY, THRESHOLDS(PHYSIOLOGY), HEARING, JUNGLES, AIRPLANE ENGINE NOISE, SIGNAL-TO-NOISE RATIO, SENSITIVITY, PERFORMANCE(HUMAN), ACCURACY, AUDITORY SIGNALS, FACTOR ANALYSIS, DATA, TEST METHODS, TEST EQUIPMENT (U)
IDENTIFIERS: ACOUSTIC DETECTION, AUDITORY THRESHOLDS, JUDGMENT, AIRCRAFT, QUIET (U)

LABORATORY EXPERIMENTS WERE UNDERTAKEN TO DEVELOP IMPROVED AURAL DETECTION CRITERIA FOR LIGHT AIRCRAFT. SPECIFICALLY TWO SERIES OF PSYCHOACOUSTIC JUDGMENT TESTS WERE CONDUCTED TO DETERMINE THE APPLICABILITY OF THE PSYCHOPHYSICAL THEORY OF SIGNAL DETECTABILITY (TSD) TO PREDICTION OF THE AURAL DETECTABILITY OF LIGHT AIRCRAFT NOISE SIGNATURES IN JUNGLE NOISE BACKGROUNDS. THE FIRST SERIES OF TESTS PRODUCED DATA SUPPORTING DEVELOPMENT OF A SIMPLIFIED GRAPHICAL PREDICTION METHOD BASED ON TSD. THE SECOND TESTING PROGRAM VALIDATED THE PRECISION AND ACCURACY OF THE PREDICTION METHOD UNDER QUASI-REALISTIC LISTENING CONDITIONS. PREDICTED LEVELS OF PERFORMANCE WERE TYPICALLY WITHIN ONE OR TWO DB OF THE DATA AVERAGED FOR ALL OBSERVERS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 907 108 20/1 1/3
GENERAL ELECTRIC CO CINCINNATI OHIO AIRCRAFT ENGINE GROUP

SUPERSONIC TRANSPORT NOISE REDUCTION TECHNOLOGY SUMMARY. PHASE I. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
DEC 72 529P FISK,W. S. ;HEHMANN,H. W. ;KNOTT,P. R. ;SANDUSKY,G. T. ;
REPT. NO. R72AEG343
CONTRACT: FA-SS-71-13
MONITOR: FAA-SS 72-43

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-907 110L.

DESCRIPTORS: (*JET ENGINE NOISE, *SUPPRESSORS), (*JET TRANSPORT PLANES, SUPERSONIC AIRCRAFT), REDUCTION, TURBOJET ENGINES, MODEL TESTS, TURBOJET EXHAUST NOZZLES, POWER SPECTRA, TURBULENCE, DUCTS, COMPRESSOR NOISE, ANNULAR NOZZLES, PLUG NOZZLES, CONICAL NOZZLES, FREQUENCY, BROADBAND, VELOCITY, AERODYNAMIC CONFIGURATIONS, NOZZLE INSERTS, HEAT RESISTANT MATERIALS, HIGH TEMPERATURE, ANGLE OF ATTACK, INTENSITY, DAMPING, CERMETS, CERAMIC MATERIALS, ABSORPTION (U)
IDENTIFIERS: CERVIT MATERIAL NO.2, CERVIT MATERIAL NO.1, CHUTED PLUG NOZZLES, COMPRESSOR TIPS, *GE-4 ENGINES, GREAT REX NOZZLES, HOLE SIZE, J-85 ENGINES, MONOBLOCK MATERIAL, *NOISE REDUCTION, SDOF MATERIAL NO.19, SDOF MATERIAL NO.18, SPOKE NOZZLES, *SUPERSONIC TRANSPORTS, TAPERED SP (U)

STUDIES WERE PERFORMED TO CONCLUDE AND REFINE ELEMENTS OF WORK BEGUN UNDER THE SUPERSONIC TRANSPORT ENGINE DEVELOPMENT PROGRAM. THREE PROGRAMS WERE COMPLETED IN THE AREA OF TURBOMACHINERY NOISE: THE SCREENING OF PROPOSED MATERIALS FOR HIGH TEMPERATURE ACOUSTIC TREATMENT AND THE EXTENSION OF SUPPRESSION DESIGN METHODS TO THE FLOWS AND TEMPERATURES TYPICAL OF TURBINE EXHAUST CONDITIONS; INVESTIGATIONS OF MULTI-STAGE COMPRESSOR TIP TREATMENT USING MULTIPLE CIRCUMFERENTIAL GROOVES; AND THE PREDICTION AND DEMONSTRATION OF THE EFFECTS OF INCREASED TURBINE AXIAL SPACING ON NOISE GENERATION. DETAILED ANALYTICAL STUDIES WERE MADE OF DATA FROM CONIC AND SUPPRESSOR-TYPE JETS, BOTH COLD AND HOT FLOWS, SELECTED FROM THE GE4/SST PROGRAM. CORRELATIONS OF AERO/ACOUSTIC INTERRELATIONSHIPS WERE MADE,

(U)

AD-A046 800 DEFENSE DOCUMENTATION CENTER ALEXANDRIA VA F/G 5/2
ENVIRONMENTAL POLLUTION: NOISE POLLUTION-AIRPLANE NOISE.(U)
NOV 77
UNCLASSIFIED DDC/BIB-77/11 NL

3 OF 5
AD A046 800



DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 907 109 20/1 1/3
GENERAL ELECTRIC CO CINCINNATI OHIO AIRCRAFT ENGINE GROUP

SUPERSONIC TRANSPORT NOISE REDUCTION TECHNOLOGY SUMMARY. PHASE I. SUMMARY OF GE4/SST ACOUSTIC SUPPRESSION RESEARCH. VOLUME 1. (U)

DESCRIPTIVE NOTE: FINAL REPT., DEC 72 786P BRAUSCH, J. F. ;DOYLE, V. L. ;
REPT. NO. R72AEG342-VOL-1
CONTRACT: FA-SS-71-13
MONITOR: FAA-SS 72-42-VOL-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-907 110L.

DESCRIPTORS: (*JET ENGINE NOISE, *SUPPRESSORS), (*JET TRANSPORT PLANES, SUPERSONIC AIRCRAFT), REDUCTION, TURBOJET ENGINES, MODEL TESTS, AFTERBURNERS, AFTERBURNING, TEST FACILITIES, EXPERIMENTAL DATA, DATA PROCESSING, WATER INJECTION, AIR, INJECTION, FLAPS(CONTROL SURFACES), VELOCITY, SECONDARY FLOW, HIGH TEMPERATURE, POWER SPECTRA, TURBOJET EXHAUST NOZZLES, PLUG NOZZLES, ANNULAR NOZZLES, CONICAL NOZZLES, THRUST REVERSAL, INTENSITY, PRESSURE (U)
IDENTIFIERS: *GE-4 ENGINES, GREATER NOZZLES, SHROUDED NOZZLES, SPOKE NOZZLES, *SUPERSONIC TRANSPORTS, VENTED CHUTE NOZZLES (U)

A DEVELOPMENT PROGRAM FOR A COMMERCIAL SUPERSONIC AIRCRAFT AND ENGINES WAS SPONSORED BY THE FEDERAL AVIATION ADMINISTRATION DURING A FIVE-YEAR PERIOD FROM 1966 THROUGH 1971. THE UNIQUE PROPULSION SYSTEM, AN AFTERBURNING TURBOJET, REQUIRED ACOUSTIC SUPPRESSION TECHNIQUES TO REDUCE ITS NOISE LEVELS TO THOSE FEDERALLY REGULATED FOR SUBSONIC AIRCRAFT. AN ACOUSTIC SUPPRESSION RESEARCH PROGRAM WAS CONDUCTED BY THE GENERAL ELECTRIC COMPANY TO DEVELOP TECHNOLOGY APPLICABLE TO PROTOTYPE AND COMMERCIAL SUPERSONIC ENGINES. PRIMARY EMPHASIS WAS ON JET NOISE SUPPRESSOR DEVELOPMENT THROUGH MODEL AND ENGINE TESTING. VARIOUS SYSTEMS WERE STUDIED INCLUDING EJECTOR PUMPING, SIMPLE MECHANICAL PRIMARY AND SECONDARY SUPPRESSORS, FLUID INJECTANTS, MULTI-ELEMENT TUBE NOZZLES, ACOUSTICALLY TREATED EJECTORS, HIGHLY SEGMENTED ANNULAR PLUG NOZZLES, ETC. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 907 110 20/1 1/3
GENERAL ELECTRIC CO CINCINNATI OHIO AIRCRAFT ENGINE GROUP

SUPERSONIC TRANSPORT NOISE REDUCTION TECHNOLOGY SUMMARY. PHASE I. SUMMARY OF GE4/SST ACOUSTIC SUPPRESSION RESEARCH. VOLUME 2. (U)

DESCRIPTIVE NOTE: FINAL REPT., DEC 72 481P BRAUSCH,J. F. ;DOYLE,V. L. ;
REPT. NO. R72AEG342-VOL-2
CONTRACT: FA-SS-71-13
MONITOR: FAA-SS 72-42-VOL-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 1, AD-907 109L AND ALSO AD-907 108L.

DESCRIPTORS: (*JET ENGINE NOISE, *SUPPRESSORS), (*JET TRANSPORT PLANES, SUPERSONIC AIRCRAFT), REDUCTION, TURBOJET ENGINES, MODEL TESTS, PRESSURE, COMPRESSOR NOISE, VELOCITY, TURBOJET EXHAUST NOZZLES, CONICAL NOZZLES, NOZZLE INSERTS, PLUG NOZZLES, ANNULAR NOZZLES, FLAPS(CONTROL SURFACES), JET ENGINE INLETS, POWER SPECTRA, SHROUD RINGS, AERODYNAMIC CONFIGURATIONS, RODS, PIPES, SECONDARY INJECTION (U)
IDENTIFIERS: CONVERGENT NOZZLES, *GE-4 ENGINES, GREATREX NOZZLES, J-79 ENGINES, NOZZLE LINERS, PARALLEL FLOW NOZZLES, SPOKE NOZZLES, *SUPERSONIC TRANSPORTS (U)

CONTENTS: JET NOISE SUPPRESSOR CONFIGURATIONS AND PARAMETRIC STUDIES (CONCLUDED) -- ACOUSTIC EJECTORS ON TUBE AND CONICAL NOZZLES, AND ANNULAR PLUG NOZZLE SUPPRESSOR MODEL STUDIES; SYSTEM STUDIES -- CHOKED INLET - GE4 ENGINE, EXHUST NOZZLE OPEN AREA SCHEDULE - GE4 ENGINE, AND TUBOMACHINERY NOISE ON GE4 ENGINE; GENERAL ELECTRIC CORPORATE RESEARCH AND DEVELOPMENT CENTER'S FUNDAMENTAL JET NOISE WORK -- SUPERSONIC JET NOISE SUPPRESSION RESULTS AND PREDICTION METHODS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD- 917 355 17/1 20/1
BOEING VERTOL CO PHILADELPHIA PA

AN EXPERIMENT IN AURAL DETECTION OF HELICOPTERS. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
DEC 73 121P HARTMAN,L. ;STERNFELD,H. ;
CONTRACT: DAAJ02-71-C-0065
PROJ: DA-1-F-162205-AA-52
TASK: 1-F-162205-AA-5202
MONITOR: USAAMRDL TR-73-50

UNCLASSIFIED REPORT

DESCRIPTORS: (*HELICOPTERS, ACOUSTIC DETECTION), (*AIRCRAFT NOISE, AUDITORY PERCEPTION), TAIL HELICOPTER ROTORS, HELICOPTER ROTORS, RANGE(DISTANCE), HEARING, BACKGROUND, AMBIENT NOISE, NOISE(SOUND), LOW FREQUENCY, PREDICTIONS, POSITION(LOCATION), MICROPHONES, ACOUSTIC DETECTORS, OBSERVATION, ATMOSPHERES, ATTENUATION, ACOUSTICS, ACOUSTIC SURVEILLANCE (U)
IDENTIFIERS: AURAL DETECTION, HELICOPTER NOISE, H-58 AIRCRAFT, ATMOSPHERIC ATTENUATION (U)

THE REPORT DESCRIBES A FIELD EXPERIMENT USED TO EVALUATE A THEORETICAL METHOD OF DETERMINING HELICOPTER AURAL DETECTION DISTANCE. A TEST PROGRAM WAS CONDUCTED USING A LIGHT COMMERCIAL HELICOPTER, TEST OBSERVERS, AND SUPPORTING ACOUSTIC MONITORI[illegible] EQUIPMENT. VARIOUS BACKGROUND AMBIENT NOISE CONDITIONS WERE USED AT THE OBSERVER LOCATION. DAT[illegible] WAS REDUCED, DETECTION DISTANCES WERE OBTAINED, AND COMPARISONS WERE MADE WITH THEORETICALLY PREDICTED DETECTION DISTANCES. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A001 329 20/1 21/5 1/3
AIR FORCE FLIGHT DYNAMICS LAB WRIGHT-PATTERSON AFB OHIO

NEAR FIELD NOISE PREDICTION FOR A LINEAR ARRAY OF TURBOJET ENGINES. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUL 74 77P SMITH,D. L. ;PAXSON,R. P. ;TALMADGE,R. D. ;PLZAK,G. A. ;
REPT. NO. AFFDL-TM-74-139-FYA
PROJ: AF-1471
TASK: 147102

UNCLASSIFIED REPORT

DESCRIPTORS: *TURBOJET ENGINES, *JET ENGINE NOISE, NEAR FIELD, NOISE(SOUND), PREDICTIONS, ACOUSTIC FIELDS, ACOUSTIC MEASUREMENT (U)

A COMPUTER PROGRAM IS PRESENTED FOR CALCULATING THE SOUND PRESSURE LEVEL (SPL) IN THE JET NEAR FIELD WHICH ACCOUNTS FOR GROUND REFLECTION AND MULTIPLE ENGINE OPERATION. THE PREDICTION METHOD IS A MODIFICATION OF THE SEMI-EMPIRICAL TECHNIQUE PRESENTED IN AFFDL TR-67-43 'NEAR FIELD NOISE ANALYSIS OF AIRCRAFT PROPULSION SYSTEMS WITH EMPHASIS ON PREDICTION TECHNIQUES FOR JETS'. THE MODIFICATIONS IN ADDITION TO ACCOUNTING FOR GROUND REFLECTION ALLOW THE PREDICTION OF THE SPL FOR THE OVERALL AND THREE OCTAVE BANDS AT ANY POINT IN THE FIELD AND REQUIRE DATA INPUTS OF JET EXIT TEMPERATURE, MACH NUMBER AND DIAMETER. A BRIEF DESCRIPTION IS PRESENTED OF A NOISE MEASUREMENT PROGRAM CONDUCTED ON THE XB-70 AIRCRAFT DURING WHICH ONE-THIRD OCTAVE BAND NOISE SPECTRA WERE OBTAINED FOR A RANGE OF ENGINE CONDITIONS AND FOR VARIOUS COMBINATIONS OF LINEAR ARRAYS OF ENGINES. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A001 737 21/5 20/1
GENERAL MOTORS CORP INDIANAPOLIS IND DETROIT DIESEL ALLISON DIV

INVESTIGATION OF AIRCRAFT COMBUSTOR NOISE. (U)

DESCRIPTIVE NOTE: FINAL REPT. JUN 73-APR 74, SEP 74 413P SEMRAU,W. R. ;FRYE,D. E. , JR;
REPT. NO. DDA-EDR-8225
CONTRACT: DAAJ02-73-C-0088
PROJ: DA-1-G-172207-AA-110
MONITOR: USAAMRDL TR-74-73

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *AIRCRAFT ENGINE NOISE, *COMBUSTORS, JET ENGINE NOISE, COMBUSTION, NOISE POLLUTION, NOISE REDUCTION, CORRELATION TECHNIQUES, REGRESSION ANALYSIS (U)
IDENTIFIERS: *COMBUSTION NOISE, T-63 ENGINES, T-63-A-5A ENGINES, ENGINEERING DESIGN (U)

CURRENT COMBUSTOR DESIGN TECHNOLOGY DEPENDS PRIMARILY UPON EMPIRICAL CORRELATION AND PAST EXPERIMENTAL EXPERIENCE OF THE DESIGNERS. THERE IS A CONTINUING NEED FOR KNOWLEDGE OF THE COMBUSTION PROCESS AND HOW THE DIFFERENT DESIGN AND PERFORMANCE PARAMETERS ARE RELATED. THE OBJECTIVE OF THIS PROGRAM WAS TO INVESTIGATE THE FEASIBILITY OF MEASURING COMBUSTOR NOISE AND THEN RELATING THE NOISE LEVELS BY CORRELATION CURVES TO OTHER PERTINENT PERFORMANCE PARAMETERS, SUCH AS COMBUSTOR EFFICIENCY, AND MASS EMISSIONS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A003 086 21/5
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

BYPASS TURBOJET ENGINE NOISE CHARACTERISTICS ON THE TEST STAND, (U)

NOV 74 36P EENENKOV,V. G. ;
REPT. NO. FTD-HC-23-862-74

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF RIZHSKII INSTITUT INZHENEROV GRADZHANSKOI AVIATSII, TRUDY (USSR) N174 P3-4, 100-134 1971.

DESCRIPTORS: *TURBOJET ENGINES, *JET ENGINE NOISE, NOISE REDUCTION, ACOUSTIC FIELDS, BYPASS ENGINES, TEST STANDS, TRANSLATIONS, USSR (U)
IDENTIFIERS: NOISE EXPOSURE (U)

THE REPORT EXAMINES THE ACOUSTIC CHARACTERISTICS OF THE PRIMARY NOISE SOURCES OF BTJE OPERATING ON THE TEST STAND. THE ACOUSTIC CHARACTERISTIC CONCEPTS ARE DISCUSSED AND METHODS FOR COMPUTATIONAL DETERMINATION OF THESE CHARACTERISTICS ARE GIVEN. INFORMATION IS PRESENTED ON THE NOISE EXCITATION MECHANISMS. THE DATA OF EXPERIMENTAL STUDIES OF THE NOISE OF BTJE WITH BYPASS RATIO Y = 0 -- 6 ARE ANALYZED. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A004 818 20/1 13/2
BOLT BERANEK AND NEWMAN INC CANOGA PARK CALIF

COMMUNITY NOISE EXPOSURE RESULTING FROM AIRCRAFT OPERATIONS: APPLICATION GUIDE FOR PREDICTIVE PROCEDURE. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
NOV 74 111P BISHOP,DWIGHT E. ;
REPT. NO. BBN-2582
CONTRACT: F33615-73-C-4160
MONITOR: AMRL TR-73-105

UNCLASSIFIED REPORT

DESCRIPTORS: *AIRCRAFT NOISE, *URBAN AREAS, *URBAN PLANNING, *NOISE POLLUTION, AIRPORTS, LAND USE, AIRCRAFT ENGINE NOISE, FLIGHT PATHS, NOISE REDUCTION (U)
IDENTIFIERS: *NOISE EXPOSURE, *NOISE EXPOSURE FORECASTS (U)

THIS REPORT IS ONE OF A SERIES DESCRIBING THE RESEARCH PROGRAM UNDERTAKEN BY THE AEROSPACE MEDICAL RESEARCH LABORATORY TO DEVELOP PROCEDURES FOR PREDICTING THE COMMUNITY NOISE EXPOSURE RESULTING FROM AIRCRAFT OPERATIONS. IT DISCUSSES THE APPLICATIONS OF THE PROCEDURE TO THE AIRCRAFT NOISE-RELATED PROBLEMS FACING MASTER PLANNERS, CIVIL ENGINEERS, ENVIRONMENTALISTS, ETC., AS WELL AS THE MANAGEMENT PEOPLE CONCERNED WITH OPERATING AN AIR BASE. EXAMPLES ARE GIVEN OF USE OF THE PROCEDURE IN TERMS FOR LAND PLANNING, OPERATIONAL APPLICATIONS AT AIR BASES AND BASIC AIRCRAFT DESIGN.(U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A004 821 20/1 13/2
BOLT BERANEK AND NEWMAN INC CANOGA PARK CALIF

COMMUNITY NOISE EXPOSURE RESULTING FROM AIRCRAFT OPERATIONS: COMPUTER PROGRAM DESCRIPTION. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
NOV 74 118P HORONJEFF,RICHARD D. ;
KANDUKURI,RAO R. ;REDDINGIUS,NICOLAAS H. ;
REPT. NO. BBN-2585
CONTRACT: F33615-73-C-4160
PROJ: AF-7231
TASK: 723104
MONITOR: AMRL TR-73-109

UNCLASSIFIED REPORT

DESCRIPTORS: *AIRCRAFT NOISE, *URBAN AREAS, *URBAN PLANNING, *NOISE POLLUTION, AIRPORTS, LAND USE, DIURNAL VARIATIONS, COMPUTER PROGRAMMING, AIRCRAFT ENGINE NOISE, FLIGHT PATHS (U)
IDENTIFIERS: NEFUSAF COMPUTER PROGRAM, GPCP COMPUTER PROGRAM (U)

THIS REPORT DESCRIBES A COMPUTER PROGRAM TO CALCULATE COMMUNITY NOISE EXPOSURE AS DETERMINED BY THE NOISE EXPOSURE FORECAST (NEF) METHODOLOGY. STUDIES BY THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY HAVE MEANWHILE LED TO THE SPECIFICATION OF ANOTHER COMMUNITY NOISE EXPOSURE MEASURE: THE DAY/NIGHT AVERAGE LEVEL (DNL). SINCE THE TWO TYPES OF DESCRIPTORS ARE ESSENTIALLY SIMILAR, THE COMPUTER PROGRAM MAY BE ADAPTED TO THIS NEW UNIT WHEN THE NEED ARISES WITHOUT THE NEED TO REDEVELOP THE COMPUTATIONAL ALGORITHMS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A006 779 20/4 1/1 20/1
CORNELL UNIV ITHACA N Y

BROADBAND AND DISCRETE FREQUENCY RADIATION FROM SUBSONIC ROTORS, (U)

JAN 74 29P HOMICZ,G. F. ;GEORGE,A. R. ;

CONTRACT: DAHC04-70-C-0057, DAHC04-74-C-0001
MONITOR: ARO 9372.4-E

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN JNL. OF SOUND AND VIBRATION, V36 N12 P151-177 1974.

DESCRIPTORS: *AIRCRAFT NOISE, *ROTARY WINGS, *AERODYNAMIC NOISE, HOVERING, TURBULENT FLOW, SPECTRUM ANALYSIS, NOISE GENERATORS, DIPOLES, REPRINTS (U)

A UNIFIED ANALYTICAL TECHNIQUE IS PRESENTED FOR THE PREDICTION OF BOTH THE DISCRETE FREQUENCY AND BROADBAND ACOUSTIC SIGNATURES GENERATED BY AERODYNAMIC ROTORS. WHILE PRESENT APPLICATIONS DEAL WITH DIPOLE (FORCE) TYPE RADIATION FROM CIRCULARLY SHAPED SOURCE REGIONS, THE APPROACH IS FORMALLY APPLICABLE TO OTHER ORDER MULTIPOLES AND ARBITRARILY SHAPED SOURCE DISTRIBUTIONS. THE PREDICTION OF BROADBAND RADIATION FROM A HOVERING ROTOR DUE TO INFLOW TURBULENCE/BLADE INTERACTION HAS BEEN ANALYZED BY USING THIS APPROACH. BY WORKING IN CO-ORDINATES FIXED WITH RESPECT TO THE OBSERVER RATHER THAN THE BLADES, THE APPROPRIATE BLADE-TO-BLADE LOAD CORRELATIONS CAN BE HANDLED CORRECTLY. A DIRECT RELATIONSHIP BETWEEN THE ACOUSTIC AND TURBULENCE SPECTRA RESULTS. THE MOST IMPORTANT PARAMETER AFFECTING THE SHAPE AND MAGNITUDE OF THE ACOUSTIC SPECTRUM IS SHOWN TO BE THE RATIO OF THE TIME TAKEN BY THE ROTOR TO COMPLETE ONE REVOLUTION TO THE TIME NEEDED TO CONVECT ONE INTEGRAL SCALE OF TURBULENCE THROUGH THE ROTOR FACE. THE RESULT INDICATES NO DIRECT DEPENDENCE OF BROADBAND NOISE ON STEADY THRUST LEVEL, EXCEPT THROUGH WHATEVER INFLUENCE IT MAY HAVE ON THE MEAN VELOCITY THROUGH THE ROTOR FACE. THE METHOD IS APPLIED FIRST TO A SIMPLIFIED POINT DIPOLE, QUASI-STEADY AERODYNAMIC BLADE MODEL FOR A B-BLADED ROTOR, PROVIDING A CONVENIENT UPPER BOUND ESTIMATE TO THE NOISE ONE CAN EXPECT IN A GIVEN SITUATION. THE PRINCIPAL EFFECTS OF COMPRESSIBLE UNSTEADY AERODYNAMICS AND OF DISTRIBUTED LOADING ARE ANALYZED AND SHOWN TO RESULT IN REDUCTIONS IN HIGH FREQUENCY RADIATION. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A009 644 20/1 21/5
CALIFORNIA INST OF TECH PASADENA KARMAN LAB OF FLUID MECHANICS AND JET PROPULSION

ACOUSTIC ATTENUATION BY VAPORIZATION OF LIQUID DROPLETS -- APPLICATION TO NOISE REDUCTION IN AIRCRAFT POWERPLANTS. (U)

DESCRIPTIVE NOTE: FINAL REPT. 1 MAR 71-30 NOV 74, FEB 75 57P MARBLE,FRANK E. ;
CONTRACT: AF-AFOSR-2068-71
PROJ: AF-9781
TASK: 978102
MONITOR: AFOSR TR-75-0511

UNCLASSIFIED REPORT

DESCRIPTORS: *JET ENGINE NOISE, *ACOUSTIC ATTENUATION, *WATER INJECTION, ACOUSTIC EMISSIONS, NOISE REDUCTION, DROPS, PLANE WAVES, DUCTS (U)
IDENTIFIERS: *PHASE EXCHANGE ATTENUATION (U)

A CLOUD OF SMALL WATER DROPLETS IN SATURATED AIR ATTENUATES ACOUSTIC DISTURBANCES BY VISCOUS DRAG, HEAT TRANSFER, AND VAPOR EXCHANGE WITH THE AMBIENT GAS. THE MECHANISMS OF THESE PROCESSES ARE ANALYZED TO SHOW THAT THE VISCOUS AND HEAT TRANSFER PHENOMENA ATTENUATE AT FREQUENCIES ABOVE THE RECIPROCAL OF THE STOKES RELAXATION TIME, A FREQUENCY OF ABOUT 10,000 HZ FOR 1-MICRON DROPLETS. THE PROCESSES ASSOCIATED WITH PHASE EXHANGE ATTENUATE AT MUCH LOWER FREQUENCIES; IN FACT, THE CHARACTERISTIC FREQUENCY OF THIS ATTENUATION MAY BE CONTROLLED BY CHOICE OF THE LIQUID MASS FRACTION. THE STRENGTH OF THE PHASE EXCHANGE ATTENUATION IS, HOWEVER, PROPORTIONAL TO THE MASS OF WATER VAPOR IN THE AIR, A FACTOR CONTROLLED BY AIR TEMPERATURE. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A010 037 20/1 1/3
ENVIRONMENTAL HEALTH LAB MCCLELLAN AFB CALIF

NOISE SURVEY FOR ADDITION OF T-37 AIRCRAFT AT MATHER AFB, CALIFORNIA. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUN 74 19P BURNETT,RONALD D. ;SWEIGART, MARLIN L. ;GUY,HARRY P. ;
REPT. NO. EHL-M-74M-9
PROJ: EHL-M-NBF-348

UNCLASSIFIED REPORT

DESCRIPTORS: *JET TRAINING PLANES, *JET ENGINE NOISE, LANDING FIELDS, ACOUSTIC MEASUREMENT, NOISE POLLUTION, TAXIING, FLYBY, CALIFORNIA (U)
IDENTIFIERS: T-37 AIRCRAFT, *NOISE LEVELS, MATHER AIR FORCE BASE (U)

NOISE LEVELS GENERATED BY T-37 AIRCRAFT WERE MEASURED AT MATHER AFB CA WHILE SIMULATING VARIOUS GROUND OPERATIONS AND DURING A FLYOVER. THESE DATA WERE COLLECTED TO ASSIST IN THE EVALUATION OF THE IMPACT OF A PROPOSED T-37 MISSION ON BASE ACTIVITIES. NOISE WAS RECORDED INSIDE AND OUTSIDE SELECTED BUILDINGS ON BASE WHICH WERE THOUGHT TO BE AFFECTED BY THESE OPERATIONS. MAXIMUM LEVELS ENCOUNTERED AT EACH BUILDING ARE PRESENTED. MEASURED NOISE LEVELS INDICATE LITTLE OR NO IMPACT ON BASE ACTIVITIES FROM NOISE GENERATED DURING OPERATION OF T-37 AIRCRAFT. WHERE APPROPRIATE, RECOMMENDATIONS FOR MINIMIZING NOISE AND SUGGESTIONS FOR ADDITIONAL EVALUATIONS ARE MADE. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A012 090 20/1 1/3
ADVISORY GROUP FOR AEROSPACE RESEARCH AND DEVELOPMENT
PARIS (FRANCE)

AIRCRAFT NOISE GENERATION, EMISSION AND
REDUCTION. (U)

DESCRIPTIVE NOTE: LECTURE SERIES.
JUN 75 187P
REPT. NO. AGARD-LS-77

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED IN BELGIUM 16-17 JUN 75, WEST GERMANY 19-20 JUN 75, AND IN THE UNITED KINGDOM 23-24 JUN 75. NATO FURNISHED.

DESCRIPTORS: *JET AIRCRAFT, *AIRCRAFT NOISE, JET ENGINE NOISE, PROPELLER NOISE, SONIC BOOM, NOISE REDUCTION, PHYSIOLOGICAL EFFECTS, LEGISLATION, NATO (U)
IDENTIFIERS: *NOISE SOURCES, *NOISE ABATEMENT (U)

THE PHYSICAL PROPERTIES OF AIRCRAFT NOISE ARE SUMMARIZED, WITH SPECIAL EMPHASIS ON JET NOISE AND FAN-COMPRESSOR-PROPELLER-ROTOR NOISE. TOPICS INCLUDE ACOUSTIC FUNDAMENTALS, NOISE SOURCE CHARACTERISTICS AND INTERACTIONS, ATMOSPHERIC PROPAGATION, AIRFRAME NOISE, SONIC BOOM, DUCT LINER AND MUFFLER THEORY. DURING THE SERIES, RESEARCH AND TECHNOLOGY ACTIVITIES RELATED TO JET ENGINE NOISE AND ITS CONTROL ARE DISCUSSED, AND THE IMPACT OF THIS NOISE ON PEOPLE AND COMMUNITIES AND AIRCRAFT OPERATIONAL PROCEDURES FOR NOISE MINIMISATION ARE ALSO REVIEWED. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A012 371 1/3 20/1
LOCKHEED-CALIFORNIA CO BURBANK

COMMERCIAL AIRCRAFT NOISE DEFINITION -
L1011 TRISTAR. VOLUME I. (U)

DESCRIPTIVE NOTE: FINAL REPT. JUN 73-SEP 74,
SEP 74 85P SHAPIRO,NATHAN ;
REPT. NO. LR-26075-VOL-1
CONTRACT: DOT-FA73WA-3300
MONITOR: FAA-EQ 73-6-VOL-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-A012 372.

DESCRIPTORS: *COMMERCIAL AIRCRAFT, *JET TRANSPORT PLANES, *JET PLANE NOISE, AIRCRAFT NOISE, JET ENGINE NOISE, NOISE POLLUTION, ACOUSTIC SIGNATURES, ACOUSTIC ATTENUATION, TAKEOFF, AIRCRAFT LANDINGS, COMPUTER PROGRAMMING, AERODYNAMIC NOISE (U)
IDENTIFIERS: L-1011 AIRCRAFT, *NOISE LEVELS, DOT/4DZ/AA, DOT/5B (U)

CALCULATION PROCEDURES TO DESCRIBE AIRPLANE NOISE DURING TAKEOFF AND APPROACH HAVE BEEN PROGRAMMED FOR BATCH OPERATION ON A LARGE DIGITAL COMPUTER. THREE ROUTINES ARE INCLUDED. THE FIRST NORMALIZES FAR-FIELD NOISE SPECTRA TO REFERENCE CONDITIONS AND THEN DETERMINES SPECTRA AT VARIOUS DISTANCES FROM THE AIRPLANE, FOR AIRPORT ELEVATIONS BETWEEN SEA LEVEL AND 6000 FEET AND AMBIENT TEMPERATURES BETWEEN 30F AND 100F. OVERALL SOUND PRESSURE LEVELS, A-WEIGHTED NOISE LEVELS, PERCEIVED NOISE LEVELS, AND EFFECTIVE PERCEIVED NOISE LEVELS ARE CALCULATED. THE SECOND ROUTINE USES AERODYNAMIC AND ENGINE THRUST DATA TO PRODUCE TAKEOFF AND APPROACH FLIGHT PATH DESCRIPTION. THE BASIC TAKEOFF IS AT EQUIVALENT AIRSPEED, WITH THRUST REDUCTION OR ACCELERATION OPTION AFTER GEAR-UP. THE APPROACH IS ALONG ANY CONSTANT GLIDE SLOPE BETWEEN 3 AND 6 DEGREES AT CONSTANT AIRSPEED, WITH A TWO-SEGMENT OPTION. THE LAST ROUTINE COMBINES NOISE PROPAGATION AND FLIGHT PATH INFORMATION TO PRODUCE CONSTANT NOISE CONTOUR FOOTPRINTS. THE PROGRAM HAS BEEN EXERCISED ON LOCKHEED L-1011-1 TRISTAR/ ROLLS-ROYCE RB.211-22 DATA, PROVIDING RESULTS IN EPNDB AND DBA. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A012 372 1/3 20/1
LOCKHEED-CALIFORNIA CO BURBANK

COMMERCIAL AIRCRAFT NOISE DEFINITION - L-1011 TRISTAR. VOLUME II-L-1011-1 DATA. (U)

DESCRIPTIVE NOTE: FINAL REPT. JUN 73-SEP 74, SEP 74 302P SHAPIRO,NATHAN ;
REPT. NO. LR-26075-VOL-2
CONTRACT: DOT-FA73WA-3300
MONITOR: FAA-EQ 73-6-VOL-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 1, AD-A012 371 AND VOLUME 3, AD-A012 373.

DESCRIPTORS: *COMMERCIAL AIRCRAFT, *JET TRANSPORT PLANES, *JET PLANE NOISE, AIRCRAFT NOISE, JET ENGINE NOISE, AERODYNAMIC NOISE, NOISE POLLUTION, ACOUSTIC SIGNATURES, ACOUSTIC ATTENUATION, TAKEOFF, AIRCRAFT LANDINGS, STATISTICAL DATA (U)
IDENTIFIERS: L-1011 AIRCRAFT, *NOISE LEVELS, DOT/4DZ/DA, DOT/5B (U)

CALCULATION PROCEDURES TO DESCRIBE AIRPLANE NOISE DURING TAKEOFF AND APPROACH HAVE BEEN PROGRAMMED FOR BATCH OPERATION ON A LARGE DIGITAL COMPUTER. THREE ROUTINES ARE INCLUDED. THE FIRST NORMALIZES FAR-FIELD NOISE SPECTRA TO REFERENCE CONDITIONS AND THEN DETERMINES SPECTRA AT VARIOUS DISTANCES FROM THE AIRPLANE, FOR AIRPORT ELEVATIONS BETWEEN SEA LEVEL AND 6000 FEET AND AMBIENT TEMPERATURES BETWEEN 30F AND 100F. OVERALL SOUND PRESSURE LEVELS, A-WEIGHTED NOISE LEVELS, PERCEIVED NOISE LEVELS, AND EFFECTIVE PERCEIVED NOISE LEVELS ARE CALCULATED. THE SECOND ROUTINE USES AERODYNAMIC AND ENGINE THRUST DATA TO PRODUCE TAKEOFF AND APPROACH FLIGHT PATH DESCRIPTION. VOLUME 2 INCLUDES L-1011-1 NOISE PROPAGATION AND AIRPLANE PERFORMANCE AND SAMPLES OF CONTOURS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A012 373 1/3 20/1
LOCKHEED-CALIFORNIA CO BURBANK

COMMERCIAL AIRCRAFT NOISE DEFINITION - L-1011 TRISTAR. VOLUME III - PROGRAM USER'S MANUAL. (U)

DESCRIPTIVE NOTE: FINAL REPT. JUN 73-SEP 74, SEP 74 105P
REPT. NO. LR-26075-VOL-3
CONTRACT: DOT-FA73WA-3300
MONITOR: FAA-EQ 73-6-VOL-3

UNCLASSIFIED REPORT
AVAILABILITY: MICROFICHE COPIES ONLY.
SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-A012 372 AND VOLUME 4, AD-A012 374.

DESCRIPTORS: *COMMERCIAL AIRCRAFT, *JET TRANSPORT PLANES, *JET PLANE NOISE, AIRCRAFT NOISE, JET ENGINE NOISE, AERODYNAMIC NOISE, NOISE POLLUTION, ACOUSTIC SIGNATURES, ACOUSTIC ATTENUATION, TAKEOFF, AIRCRAFT LANDINGS, COMPUTER PROGRAMMING, USER NEEDS (U)
IDENTIFIERS: L-1011 AIRCRAFT, *NOISE LEVELS, DOT/4DZ/DA, DOT/5B (U)

CALCULATION PROCEDURES TO DESCRIBE AIRPLANE NOISE DURING TAKEOFF AND APPROACH HAVE BEEN PROGRAMMED FOR BATCH OPERATION ON A LARGE DIGITAL COMPUTER. THREE ROUTINES ARE INCLUDED. THE FIRST NORMALIZES FAR-FIELD NOISE SPECTRA TO REFERENCE CONDITIONS AND THEN DETERMINES SPECTRA AT VARIOUS DISTANCES FROM THE AIRPLANE, FOR AIRPORT ELEVATIONS BETWEEN SEA LEVELS AND 6000 FEET AND AMBIENT TEMPERATURES BETWEEN 30F AND 100F. OVERALL SOUND PRESSURE LEVELS, A-WEIGHTED NOISE LEVELS, PERCEIVED NOISE LEVELS, AND EFFECTIVE PERCEIVED NOISE LEVELS ARE CALCULATED. THE SECOND ROUTINE USES AERODYNAMIC AND ENGINE THRUST DATA TO PRODUCE TAKEOFF AND APPROACH FLIGHT PATH DESCRIPTION. VOLUME 3 PRESENTS THE LOGIC BEHIND THE CALCULATIONS AND OUTLINES THE COMPUTATIONAL PROCEDURES. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A012 374 1/3 20/1
LOCKHEED-CALIFORNIA CO BURBANK

COMMERCIAL AIRCRAFT NOISE DEFINITION - L-1011 TRISTAR. VOLUME IV-PROGRAM DESIGN SPECIFICATION. (U)

DESCRIPTIVE NOTE: FINAL REPT. JUN 73-SEP 74, SEP 74 126P SHAPIRO,NATHAN ;
REPT. NO. LR-26075-VOL-4
CONTRACT: DOT-FA73WA-3300
MONITOR: FAA-EQ 73-6-VOL-4

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 3, AD-A012 373 AND VOLUME 5, AD-A012 375.

DESCRIPTORS: *COMMERCIAL AIRCRAFT, *JET TRANSPORT PLANES, *JET PLANE NOISE, AIRCRAFT NOISE, JET ENGINE NOISE, AERODYNAMIC NOISE, NOISE POLLUTION, ACOUSTIC SIGNATURES, ACOUSTIC ATTENUATION, TAKEOFF, AIRCRAFT LANDINGS, COMPUTER PROGRAMMING (U)
IDENTIFIERS: L-1011 AIRCRAFT, *NOISE LEVELS, DOT/4DZ/D , DOT/5B (U)

CALCULA[illegible]N PROCEDURES TO DESCRIBE AIRPLANE NOISE DURING [illegible]EOFF AND APPROACH HAVE BEEN PROGRAMMED FOR BATCH [illegible]ATION ON A LARGE DIGITAL COMPUTER. THREE ROUTINE[illegible]RE INCLUDED. THE FIRST NORMALIZES FAR-FIELD N[illegible]SE SPECTRA TO REFERENCE CONDITIONS AND THEN DETERMINES SPECTRA AT VARIOUS DISTANCES FROM THE AIRPLANE, FOR AIRPORT ELEVATIONS BETWEEN SEA LEVEL AND 6000 FEET AND AMBIENT TEMPERATURES BETWEEN 30F AND 100F. OVERALL SOUND PRESSURE LEVELS, A-WEIGHTED NOISE LEVELS, PERCEIVED NOISE LEVELS, AND EFFECTIVE PERCEIVED NOISE LEVELS ARE CALCULATED. THE SECOND ROUTINE USES AERODYNAMIC AND ENGINE THRUST DATA TO PRODUCE TAKEOFF AND APPROACH FLIGHT PATH DESCRIPTION. VOLUME 4 DESCRIBES THE COMPUTER PROGRAM AND GIVES INSTRUCTIONS FOR ITS OPERATION. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A012 375 1/3 20/1
LOCKHEED-CALIFORNIA CO BURBANK

COMMERCIAL AIRCRAFT NOISE DEFINITION - L-1011 TRISTAR. VOLUME V-COMPUTER PROGRAMMER'S MANUAL. (U)

DESCRIPTIVE NOTE: FINAL REPT. JUN 73-SEP 74, SEP 74 370P SHAPIRO,NATHAN ;
REPT. NO. LR-26075-VOL-5
CONTRACT: DOT-FA73WA-3300
MONITOR: FAA-EQ 73-6-VOL-5

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 4, AD-A012 374.

DESCRIPTORS: *COMMERCIAL AIRCRAFT, *JET TRANSPORT PLANES, *JET PLANE NOISE, AIRCRAFT NOISE, JET ENGINE NOISE, AERODYNAMIC NOISE, NOISE POLLUTION, ACOUSTIC SIGNATURES, ACOUSTIC ATTENUATION, TAKEOFF, AIRCRAFT LANDINGS, COMPUTER PROGRAMS, USER NEEDS (U)
IDENTIFIERS: L-1011 AIRCRAFT, *NOISE LEVELS, DOT/4DZ/DA, DOT/5B (U)

CALCULATION PROCEDURES TO DESCRIBE AIRPLANE NOISE DURING TAKEOFF AND APPROACH HAVE BEEN PROGRAMMED FOR BATCH OPERATION ON A LARGE DIGITAL COMPUTER. THREE ROUTINES ARE INCLUDED. THE FIRST NORMALIZES FAR-FIELD NOISE SPECTRA TO REFERENCE CONDITIONS AND THEN DETERMINES SPECTRA AT VARIOUS DISTANCES FROM THE AIRPLANE, FOR AIRPORT ELEVATIONS BETWEEN SEA LEVEL AND 6000 FEET AND AMBIENT TEMPERATURES BETWEEN 30F AND 100F. OVERALL SOUND PRESSURE LEVELS, A-WEIGHTED NOISE LEVELS, PERCEIVED NOISE LEVELS, AND EFFECTIVE PERCEIVED NOISE LEVELS ARE CALCULATED. THE SECOND ROUTINE USES AERODYNAMIC AND ENGINE THRUST DATA TO PRODUCE TAKEOFF AND APPROACH FLIGHT PATH DESCRIPTION. VOLUME 5 DESCRIBES THE COMPUTER PROGRAM AND GIVE INSTRUCTIONS FOR ITS OPERATION. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A012 384 1/3 20/1 13/2
BOEING COMMERCIAL AIRPLANE CO SEATTLE WASH

AIRCRAFT NOISE DEFINITION. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
DEC 73 78P WILLIAMS,B. G. ;YATES,R. ;
REPT. NO. D6-41302
CONTRACT: DOT-FA73WA-3254
MONITOR: FAA-EQ 73-7-1

UNCLASSIFIED REPORT

DESCRIPTORS: *AIRCRAFT NOISE, *ACOUSTIC MEASUREMENT, NOISE REDUCTION, DATA ACQUISITION, DATA REDUCTION, TAKEOFF, APPROACH, CLIMBING (U)
IDENTIFIERS: DOT/5C, DOT/4DZ/DA, BOEING AIRCRAFT (U)

ACOUSTIC DATA ACQUISITION AND REDUCTION SYSTEMS ARE DISCUSSED TOGETHER WITH ANALYTICAL PROCEDURES USED TO DERIVE NOISE CHARACTERISTICS OF A SERIES OF BOEING AIRCRAFT TYPES. NOISE DATA ARE PRESENTED IN EPNDB AND DB(A) UNITS, FROM TAKEOFF TO LOW APPROACH THRUST AND FOR AIRCRAFT ALTITUDES FROM 200 TO 12,000 FEET. AREAS OF POSSIBLE DATA DEFICIENCY ARE IDENTIFIED AND 90% CONFIDENCE LIMITS ESTABLISHED WHERE POSSIBLE. A FLIGHT TEST PROGRAM IS PROPOSED WITH THE OBJECTIVES OF IMPROVING DATA ACCURACY AND ESTABLISHING CONFIDENCE LIMITS OVER A WIDE RANGE OF OPERATING CONDITIONS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A012 385 1/3 13/2
BOEING COMPUTER SERVICES INC SEATTLE WASH

BOEING AIRPLANE/NOISE PERFORMANCE COMPUTER PROGRAM. USER'S MANUAL. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
DEC 73 61P BHATIA,K. ;JAEGER,M. A. ;
WILLIAMS,B. [illegible]TES,R. ;
REPT. NO. BC[illegible]
CONTRACT: DO[illegible]234
MONITOR: FAA-[illegible] 73-7-6

UNCLASSIFIED REPORT

DESCRIPTORS: *AIRCRAFT NOISE, *COMPUTER PROGRAMMING, MANUALS, TAKEOFF, APPROACH, NOISE REDUCTION, NOISE POLLUTION (U)
IDENTIFIERS: BOEING AIRCRAFT, DOT/5C, DOT/4DZ/DA (U)

THE DOCUMENT PROVIDES PROGRAM USAGE FOR THE BOEING AIRPLANE NOISE/PERFORMANCE COMPUTER PROGRAM. THE PROGRAM CALCULATES TAKEOFF AND APPROACH PROFILES, INCLUDING NOISE-ABATEMENT PROCEDURES, WITH OUTPUT DATA FOR DISTANCE, HEIGHT, SPEED, THRUST, RATE OF CLIMB, GRADIENT, DECK ANGLE, ENGINE PRESSURE RATIO, ROTOR SPEED, AND NOISE UNDER THE FLIGHTPATH IN UNITS OF EPNDB AND DB(A). SEVERAL CASES ARE INCLUDED IN A SAMPLE RUN OF THE PROGRAM TO ILLUSTRATE THE INPUT REQUIREMENTS AND OUTPUT CAPABILITIES. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A012 969 20/1 1/3
BOEING CO WICHITA KANS WICHITA DIV

FAA JT3D QUIET NACELLE RETROFIT FEASIBILITY PROGRAM. VOLUME II. UPPER GOAL GROUND TESTING. (U)

DESCRIPTIVE NOTE: FINAL REPT. JUL 71-MAR 74, APR 74 196P LINSCHEID,L. L. ;MAYER,J. E. ;VELDMAN,H. F. ;
REPT. NO. D3-9042-3
CONTRACT: DOT-FA71WA-25280
MONITOR: FAA-RD 73-131-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 1, AD-781 826.

DESCRIPTORS: *JET TRANSPORT PLANES, *JET ENGINE NOISE, *JET ENGINE NACELLES, NOISE REDUCTION, ACOUSTIC MEASUREMENT, PLUG NOZZLES, NOISE POLLUTION, CONICAL NOZZLES, RETROFITTING (U)
IDENTIFIERS: T-3 ENGINES, JT-3D ENGINES, BOEING 707 AIRCRAFT, *QUIET NACELLES, DOT/4DZ/DA, DOT/5B (U)

THE PHASE 2 QUIET NACELLE FOR JT3D POWERED 707 AIRCRAFT IS IDENTICAL TO THE PHASE 1 QUIET NACELLE IN THAT IT RETAINS A TWO-RING ACOUSTICALLY TREATED INLET, HYDRAULICALLY POWERED FAN THRUST REVERSER AND 3/4 LENGTH ACOUSTICALLY TREATED FAN DUCTS INTEGRAL WITH THE SIDE COWL. THE PHASE 2 NACELLE, HOWEVER, DIFFERS FROM THE PHASE 1 NACELLE IN THAT A PLUG NOZZLE REPLACES THE CONVENTIONAL CONICAL NOZZLE. BOTH CONFIGURATIONS RETAIN THE STANDARD 707 PRIMARY THRUST REVERSER. BOEING FUNDED MODEL AND FULL SCALE GROUND TESTS WERE PERFORMED TO PROVIDE INSIGHT AND TECHNICAL BACKGROUND RELATING TO ACOUSTIC AND PROPULSION PERFORMANCE OF PLUG NOZZLES. THE INFORMATION THUS OBTAINED WAS USED IN THE DESIGN OF THE FULL SCALE HARDWARE. FULL SCALE ENGINE GROUND TESTS WERE PERFORMED ON TWO CONFIGURATION OF THE PHASE 2 UPPER GOAL QUIET NACELLE TO DETERMINE ITS ACOUSTIC AND PROPULSION PERFORMANCE AND TO PERMIT COMPARISON WITH THE PERFORMANCE OF THE PHASE 1 NACELLE. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A013 128 21/5 1/3 20/1
GENERAL ELECTRIC CO CINCINNATI OHIO AIRCRAFT ENGINE GROUP

CORE ENGINE NOISE CONTROL PROGRAM. VOLUME I. IDENTIFICATION OF COMPONENT NOISE SOURCES. (U)

DESCRIPTIVE NOTE: FINAL REPT. JUL 72-APR 74, AUG 74 119P KAZAN,S. B. ;MATTA,R. K. ;BILWAKESH,K. R. ;HARRIS,V. G. ;LATHAM,D. ;
CONTRACT: DOT-FA72WA-3023
MONITOR: FAA-RD 74-125-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-A013 129.

DESCRIPTORS: *TURBOFAN ENGINES, *JET ENGINE NOISE, AIRCRAFT NOISE, NOISE REDUCTION, NOISE POLLUTION, ENGINE COMPONENTS, ACOUSTIC MEASUREMENT, COMMERCIAL AIRCRAFT (U)
IDENTIFIERS: *NOISE SOURCES, DOT/4DZ/DA, DOT/5B (U)

THE VARIOUS NOISE SOURCES CONSTITUTING THE CORE ENGINE NOISE FOR TURBOFAN ENGINES WERE IDENTIFIED AND RANK ORDERED. AN INVESTIGATION WAS MADE TO ASCERTAIN THE GENERATING MECHANISMS, CONTROLLING VARIABLES, MEANS OF IDENTIFICATION, AND THE EFFECT ON ENGINE DESIGN IF REDUCTION WERE REQUIRED FOR EACH OF EIGHT CORE ENGINE NOISE SOURCES. THE RELATIVE SIGNIFICANCE OF THE VARIOUS NOISE SOURCES WAS EVALUATED BY PREDICTING THE NOISE CONTRIBUTION OF THE INDIVIDUAL COMPONENTS BY THE METHODS DERIVED DURING THE COURSE OF THE CORE ENGINE NOISE CONTROL PROGRAM. THE PREDICTIONS WERE MADE FOR EACH OF THE THREE HYPOTHETICAL CYCLES FOR BYPASS RATIOS OF 4, 7, AND 14, RESPECTIVELY, WHICH WERE FORMULATED TO ENCOMPASS A RANGE OF COMMERCIAL AIRCRAFT POWERPLANTS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A013 129 21/5 1/3 20/1
GENERAL ELECTRIC CO CINCINNATI OHIO AIRCRAFT ENGINE GROUP

CORE ENGINE NOISE CONTROL PROGRAM. VOLUME II. IDENTIFICATION OF NOISE GENERATION AND SUPPRESSION MECHANISMS. (U)

DESCRIPTIVE NOTE: FINAL REPT. JUL 72-APR 74, AUG 74 517P KAZIN,S. B. ;MATTA,R. K. ;BILWAKESH,K. R. ;CLAPPER,W. S. ;EMERLING, J. J. ;
CONTRACT: DOT-FA72WA-3023
MONITOR: FAA-RD 74-125-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 1, AD-A013 128, AND VOLUME 3, AD-A013 131.

DESCRIPTORS: *TURBOFAN ENGINES, *JET ENGINE NOISE, AIRCRAFT NOISE, NOISE REDUCTION, NOISE POLLUTION, ENGINE COMPONENTS, ACOUSTIC MEASUREMENT, COMMERCIAL AIRCRAFT (U)
IDENTIFIERS: *NOISE SOURCES, DOT/4DZ/DA, DOT/5B (U)

THE MECHANISMS OF NOISE GENERATION AND SUPPRESSION FOR THE VARIOUS CORE ENGINE NOISE SOURCES IN TURBOFANS WERE DEFINED THROUGH A BALANCED ANALYTICAL AND EXPERIMENTAL PROGRAM. MODEL, COMPONENT, AND ENGINE TESTS WERE USED TO SUBSTANTIATE THE RESULTS OF THE ANALYSIS AND TO DETERMINE THE BASIC NOISE GENERATING PARAMETERS. THE RESULTS WERE CAST IN A GENERAL FORM SO AS TO BE APPLICABLE TO A WIDE VARIETY OF CYCLES, INCLUDING FUTURE TECHNOLOGY TURBOFAN ENGINES. SEVERAL SUPPRESSION CONCEPTS WERE IDENTIFIED THROUGH ANALYSIS AND THROUGH LOGICAL EXTENSION OF EXPERIENCE WITH EARLIER PROGRAMS ON ON HIGH VELOCITY JET NOISE AND FAN/COMPRESSOR NOISE RESEARCH. THE SUPPRESSION CONCEPTS WERE VALIDATED THROUGH MODEL AND COMPONENT TESTS AND THROUGH EVALUATION OF AVAILABLE ENGINE DATA. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A013 131 21/5 1/3 20/1
GENERAL ELECTRIC CO CINCINNATI OHIO AIRCRAFT ENGINE GROUP

CORE ENGINE NOISE CONTROL PROGRAM.
VOLUME III. PREDICTION METHODS. (U)

DESCRIPTIVE NOTE: FINAL REPT. JUL 72-APR 74,
AUG 74 179P KAZIN,S. B. ;MATTA,R. K. ;BILWAKESH,K. R. ;EMMERLING,J. J. ;LATHAM, D. ;
CONTRACT: DOT-FA72WA-3023
MONITOR: FAA-RD 74-125-3

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 1, AD-A013 128.

DESCRIPTORS: *TURBOFAN ENGINES, *JET ENGINE NOISE, AIRCRAFT NOISE, NOISE REDUCTION, NOISE POLLUTION, ENGINE COMPONENTS, ACOUSTIC MEASUREMENT, COMMERCIAL AIRCRAFT (U)
IDENTIFIERS: *NOISE SOURCES, DOT/4DZ/DA, DOT/5B (U)

PREDICTION METHODS FOR CORE ENGINE NOISE WERE REVIEWED AND EITHER UPDATED OR NEW NOISE EVALUATION TECHNIQUES FORMULATED FOR LOW VELOCITY COANNULAR JETS, COMBUSTORS ('CORE' NOISE), LOW PRESSURE TURBINES, INTERACTION BETWEEN TURBINE TONES AND FAN/CORE JET STREAMS, OBSTRUCTIONS IN THE FLOW PASSAGES AND CASING RADIATION. THE DEVELOPMENT WAS BASED, TO A LARGE EXTENT, ON THE ANALYTICAL INVESTIGATION AND THE MODEL, COMPONENT AND ENGINE TESTS EVALUATED DURING PHASES 2 AND 3 OF THIS PROGRAM. THE RESULTS WERE CAST IN A GENERAL FORM, SO AS TO BE APPLICABLE TO A WIDE VARIETY OF CYCLES, INCLUDING PRESENT AND FUTURE TURBOFAN ENGINES. THE PREDICTION METHODS WERE VALIDATED WITH MEASURED ACOUSTIC DATA WHEREVER POSSIBLE. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A013 177 1/2 20/1 1/3
BOEING COMMERCIAL AIRPLANE CO SEATTLE WASH

AIRCRAFT NOISE DEFINITION - INDIVIDUAL AIRCRAFT TECHNICAL DATA--MODEL 727. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
DEC 73 204P WILLIAMS,B. G. ;YATES,R. ;
REPT. NO. D6-42141-2
CONTRACT: DOT-FA73-WA-3254
MONITOR: FAA-EQ 73-7-3

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED DEC 73, AD-A012 384.

DESCRIPTORS: *COMMERCIAL AIRCRAFT, *TRANSPORT AIRCRAFT, *AIRCRAFT NOISE, FLIGHT MANEUVERS, TAKEOFF, APPROACH, ACOUSTIC MEASUREMENT, DATA ACQUISITION, NOISE REDUCTION (U)
IDENTIFIERS: BOEING 727 AIRCRAFT, DOT/4DZ/DA, DOT/5B (U)

TECHNICAL DATA ARE PRESENTED FOR GRAPHICALLY DETERMINING TAKEOFF, CUTBACK, AND APPROACH PERFORMANCE AND NOISE UNDER THE FLIGHTPATH FOR VARIOUS BOEING MODEL 727 AIRCRAFT CURRENTLY IN OPERATION. DATA ARE INCLUDED FOR ALL CERTIFIED FLAP POSITIONS AND COVER OPERATIONS FROM AIRPORTS FROM SEA LEVEL TO 6000 FT. ALTITUDE AT TEMPERATURES FROM 30F TO 100F. WITH WINDS FROM -10 TO +30 KN OVER THE ENTIRE OPERATIONAL WEIGHT RANGE. NOISE DATA ARE SHOWN FOR UNITS OF EPNDB AND DB(A) FROM TAKEOFF TO LOW APPROACH THRUST AND FOR AIRCRAFT ALTITUDES BETWEEN 200 AND 12,000 FT. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A013 365 17/2
ARMY ELECTRONICS COMMAND FORT MONMOUTH N J

ACOUSTIC NOISE SUPPRESSION IN AIRBORNE COMMUNICATIONS. (U)

DESCRIPTIVE NOTE: RESEARCH AND DEVELOPMENT TECHNICAL REPT.,
JUL 75 55P MAYER,MITCHELL S. ;
REPT. NO. ECOM-4336
PROJ: DA-1-F-2623207-DB-97
TASK: 1-F-2623207-DB-9701

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-767 222.

DESCRIPTORS: *MICROPHONES, *NOISE REDUCTION, *AIRCRAFT NOISE, *INTERCOMMUNICATION SYSTEMS, *EARPHONES, INTELLIGIBILITY, ACOUSTIC FILTERS, HELMETS, HEARING, HELICOPTERS, SUPPRESSORS, NOISE ANALYZERS, CANCELLATION, FREQUENCY RESPONSE, CARGO AIRCRAFT (U)
IDENTIFIERS: CH-47 AIRCRAFT, H-47 AIRCRAFT (U)

ONE OF THE MAJOR RECOMMENDATIONS OF ECOM REPORT 4140 (AD-767 222) WAS THE IMPROVEMENT OR REPLACEMENT OF THE M-87 MICROPHONE WITH ONE THAT HAD IMPROVED NOISE CANCELLING CAPABILITIES AND A FLATTER FREQUENCY RESPONSE. THIS AREA OF CONCERN IS COVERED EXTENSIVELY. A PROGRAM HAS BEEN ESTABLISHED TO FURTHER EVALUATE MILITARIZED, IMPROVED-MICROPHONE CANDIDATES FOR POSSIBLE INCORPORATION INTO THE ARMY SYSTEM IN FY-77. ANOTHER RECOMMENDATION OF ECOM REPORT 4140 WAS THE IMPROVEMENT OF THE HELI-NOTCH FILTER (PRESENTLY ON ALL CH-47 AIRCRAFT) WITH AN EXTENDED FREQUENCY RESPONSE AND THE CAPABILITY OF ELIMINATING ALL PURE TONE COMPONENTS NOT CANCELLED BY THE MICROPHONE. ONE SUCH FILTER WAS INVESTIGATED AND WAS FOUND TO BE SOMEWHAT SUCCESSFUL IN ACHIEVING THIS GOAL. AN AD PHASE OF THE WHINE FILTER DEVELOPMENT IS EXPECTED TO BEGIN IN FY-76. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A013 435 20/1 1/5
MITRE CORP MCLEAN VA

AIRCRAFT SOUND DESCRIPTION SYSTEM (ASDS) APPLICATION PROCEDURES. VOLUME III. DATA TABLES, (U)

SEP 74 358P GOLDMAN,DONALD ;MAGINNIS, FRANCIS X. ;
REPT. NO. MTR-6616-SER-1-VOL-3
CONTRACT: DOT-FA69NS-162
MONITOR: FAA-EQ 74-2-3

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SUPERSEDES REPORT DATED MAR 74, AD-786 614. SEE ALSO REPORT DATED MAR 74, AD-786 613.

DESCRIPTORS: *AIRPORTS, *AIRCRAFT NOISE, NOISE POLLUTION, PERIODIC VARIATIONS, EXPOSURE(PHYSIOLOGY), ACOUSTIC MEASUREMENT, AIRCRAFT LANDINGS, TAKEOFF, DATA BASES (U)
IDENTIFIERS: *NOISE EXPOSURE, *NOISE LEVELS, *AIRCRAFT SOUND DESCRIPTION SYSTEMS, SCENARIOS, DOT/4DZ/DA, DOT/5B (U)

THE AIRCRAFT SOUND DESCRIPTION SYSTEM (ASDS) IS A METHOD OF DESCRIBING AIRCRAFT NOISE. IT HAS BEEN ESTABLISHED AS THE BASIC FAA TECHNIQUE FOR PREDICTING COMMUNITY NOISE EXPOSURE CAUSED BY AIRCRAFT OPERATIONS. THIS REPORT (IN FOUR VOLUMES) IS A DESCRIPTION OF THE MANUAL AND COMPUTER TECHNIQUES FOR APPLYING ASDS AS WELL AS A CURRENT SET OF NOISE EXPOSURE CONTOURS. THIS VOLUME PRESENTS IN TABULAR FORM A SET OF 239 ASDS NOISE EXPOSURE CONTOURS COVERING 51 DIFFERENT AIRCRAFT TYPES. A DESCRIPTION OF THE DATA TABLES AND A STATEMENT OF CONDITIONS AND ASSUMPTIONS IN DEVELOPING THE DATA ARE PRESENTED. THE OTHER VOLUMES IN THE SET ARE: VOLUME I, 'OVERVIEW,' VOLUME 2, 'MANUAL APPLICATION PROCEDURES,' AND VOLUME 4, 'COMPUTER APPLICATION PROCEDURES'. THIS DOCUMENT CONTAINS UPDATED VERSIONS OF THE TABLES PUBLISHED IN REPORT FAA-EQ-74-2, VOLUME 3, DATED MARCH 1974. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A013 768 1/3 13/2
BOEING COMPUTER SERVICES INC SEATTLE WASH

BOEING AIRPLANE/NOISE PERFORMANCE COMPUTER PROGRAM. PROGRAMMER'S MANUAL. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
DEC 73 727P BHATIA,K. ;JAEGER,M. A. ;
JOHNSON,S. ;WILLIAMS,B. G. ;
REPT. NO. BCS-G0473
CONTRACT: DOT-FA73-WA-3254
MONITOR: FAA-EQ 73-7-7

UNCLASSIFIED REPORT
AVAILABILITY: AVAILABLE IN MICROFICHE ONLY.
SUPPLEMENTARY NOTE: SEE ALSO AD-A012 385.

DESCRIPTORS: *AIRCRAFT NOISE, *COMPUTER PROGRAMMING, MANUALS, TAKEOFF, APPROACH, NOISE REDUCTION, NOISE POLLUTION (U)
IDENTIFIERS: BOEING AIRCRAFT, DOT/5C, DOT/4DZ/DA, NOISE ABATEMENT (U)

THE DOCUMENT PROVIDES PROGRAMMER INFORMATION FOR THE BOEING AIRPLANE NOISE/PERFORMANCE COMPUTER PROGRAM. THE PROGRAM CALCULATES TAKEOFF AND APPROACH PROFILES, INCLUDING NOISE-ABATEMENT PROCEDURES, WITH OUTPUT DATA FOR DISTANCE, HEIGHT, SPEED, THRUST, RATE OF CLIMB, GRADIENT DECK ANGLE, ENGINE PRESSURE RATIO, ROTOR SPEED, AND NOISE UNDER THE FLIGHT PATH IN UNITS OF EPNDB AND DB(A). INFORMATION PROVIDED INCLUDES PROGRAM USAGE, SUBPROGRAM DESCRIPTION, PROGRAM FLOW, AND OTHER INFORMATION REQUIRED BY COMPUTER PROGRAMMERS FOR THE OPERATION, MAINTENANCE, AND MODIFICATION OF THE PROGRAM. APPENDIXES INCLUDE DATA TABLES, DATA TABLE SOURCE, SAMPLE RUN, AND COMPLETE PROGRAM LISTING. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A013 794 20/1 1/3
ARNOLD ENGINEERING DEVELOPMENT CENTER ARNOLD AIR FORCE STATION TENN

JET NOISE: A SURVEY AND A PREDICTION FOR SUBSONIC FLOWS. (U)

DESCRIPTIVE NOTE: FINAL REPT. JUL 73-SEP 74, AUG 75 78P HARSHA,PHILIP T. ;
REPT. NO. AEDC-TR-75-85
PROJ: ARO-RF438 AND ARO-R32P

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH ARO, INC., TULLAHOMA, TENN. REPT. NO. ARO-ETF-TR-74-115.

DESCRIPTORS: *JET ENGINE NOISE, *AERODYNAMIC NOISE, JET PLANE NOISE, ACOUSTIC FIELDS, TURBULENT FLOW, FLOW FIELDS, KINETIC ENERGY, NOISE POLLUTION, MATHEMATICAL ANALYSIS (U)
IDENTIFIERS: *AEROACOUSTICS (U)

THE STATE-OF-THE-ART OF THE PREDICTION OF TURBULENT JET NOISE IS SURVEYED. THIS SURVEY INCLUDES A DESCRIPTION OF THE AVAILABLE EXPERIMENTAL DATA ON SUBSONIC AND SUPERSONIC, COLD AND HOT JETS, AND OF PRESENT THEORETICAL TREATMENTS OF THE MECHANISMS OF TURBULENT JET NOISE PRODUCTION. A DETAILED ANALYSIS OF THE PRODUCTION OF SUBSONIC COLD JET NOISE, BASED ON THE ACOUSTIC ANALOGY FORMULATION, IS DESCRIBED, AND RESULTS OF COMPUTATIONS USING THIS ANALYSIS AND A TURBULENT KINETIC ENERGY ANALYSIS OF THE JET FLOW FIELD ARE PRESENTED AND COMPARED WITH REPRESENTATIVE EXPERIMENTAL DATA. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A014 640 1/3 20/1
UNITED TECHNOLOGIES CORP WINDSOR LOCKS CONN HAMILTON STANDARD DIV

A COMPREHENSIVE REVIEW OF HELICOPTER NOISE LITERATURE. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUN 75 188P MAGLIOZZI,B. ;METZGER,F. B. ;BAUSCH,W. ;KING,R. J. ;
CONTRACT: DOT-FA74WA-3477
MONITOR: FAA-RD 75-79

UNCLASSIFIED REPORT

DESCRIPTORS: *HELICOPTERS, *AIRCRAFT NOISE, STATE OF THE ART, BIBLIOGRAPHIES, IMPULSE NOISE, GEAR NOISE, PROPELLER NOISE, GAS TURBINES, ENGINE NOISE, TOLERANCES(PHYSIOLOGY), NOISE REDUCTION (U)
IDENTIFIERS: NOISE CERTIFICATION CRITERIA (U)

THIS REPORT SUMMARIZES THE STATE-OF-THE-ART IN HELICOPTER NOISE. IT INCLUDES A BIBLIOGRAPHY OF REPORTS ON ALL COMPONENTS OF HELICOPTER NOISE INCLUDING MAIN ROTOR, TAIL ROTOR, ENGINE AND GEARBOX. LITERATURE ON HELICOPTER NOISE REDUCTION AND SUBJECTIVE EVALUATION OF HELICOPTER NOISE WERE ALSO INCLUDED. CAPSULE SUMMARIES OF IMPORTANT REPORTS ARE INCLUDED WHICH DESCRIBE THE PURPOSE OF THE REPORT, SUMMARIZES THE IMPORTANT RESULTS, COMPARES THE REPORT WITH OTHERS ON THE SAME SUBJECT, AND PROVIDES A CRITICAL EVALUATION OF THE WORK PRESENTED. IT IS CONCLUDED THAT THE AVAILABLE PREDICTION METHODOLOGY PROVIDES A MEANS FOR ESTIMATING HELICOPTER SOURCES ON A GROSS BASIS. HOWEVER, THE MECHANISMS OF NOISE GENERATION ARE STILL NOT FULLY UNDERSTOOD, ALTHOUGH THE EXPERIMENTAL AND THEORETICAL TOOLS ARE NOW AVAILABLE TO CONDUCT THE DEFINITIVE EXPERIMENTS AND ESTABLISH THE MATHEMATICAL MODELS NEEDED FOR ACCURATE DEFINITION OF HELICOPTER NOISE GENERATION MECHANISMS. SPECTRUM ANALYSES OF HELICOPTER NOISE SHOW THAT MAIN ROTOR, TAIL ROTOR, AND ENGINE SOURCES CONTRIBUTE SIGNIFICANTLY TO ANNOYANCE. IN CASES WHERE THESE SOURCES HAVE BEEN HEAVILY SUPPRESSED, GEARBOX NOISE WILL ALSO APPEAR AS A SIGNIFICANT CONTRIBUTOR TO ANNOYANCE. THEREFORE, QUIETER HELICOPTERS MUST INCLUDE SUPPRESSION OF ALL OF THESE COMPONENTS. FOR CERTIFICATION, THE LITER (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A014 642 1/3 20/1
BOEING COMMERCIAL AIRPLANE CO SEATTLE WASH

AIRCRAFT NOISE DEFINITION. INDIVIDUAL AIRCRAFT TECHNICAL DATA-MODEL 707. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
DEC 73 94P WILLIAMS,BILLY G. ;YATES,
RODNEY ;BUCHHOLZ,R. E. ;
REPT. NO. D6-42141-1
CONTRACT: DOT-FA73WA-3254
MONITOR: FAA-EQ 73-7-2

UNCLASSIFIED REPORT

DESCRIPTORS: *AIRCRAFT NOISE, *JET TRANSPORT PLANES, *JET PLANE NOISE, TAKEOFF, APPROACH, FLIGHT PATHS, PERFORMANCE(ENGINEERING), GRAPHS, JET ENGINE NOISE (U)
IDENTIFIERS: BOEING 707 AIRCRAFT (U)

TECHNICAL DATA ARE PRESENTED FOR GRAPHICALLY DETERMINING TAKEOFF, CUTBACK, AND APPROACH PERFORMANCE AND NOISE UNDER THE FLIGHTPATH FOR VARIOUS BOEING MODEL 707 AIRCRAFT CURRENTLY IN OPERATION. DATA ARE INCLUDED FOR ALL CERTIFIED FLAP POSITIONS AND COVER OPERATIONS FROM AIRPORTS FROM SEA LEVEL TO 6000 FT ALTITUDE AT TEMPERATURES FROM 30 TO 100F WITH WINDS FROM -10 TO +30 KN OVER THE ENTIRE OPERATIONAL WEIGHT RANGE. NOISE DATA ARE SHOWN FOR UNITS OF EPNDB AND DB(A) FROM TAKEOFF TO LOW APPROACH THRUST AND FOR AIRCRAFT ALTITUDES BETWEEN 200 AND 12,000 FT. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A014 644 20/1 4/2
FEDERAL AVIATION ADMINISTRATION WASHINGTON D C SYSTEMS RESEARCH AND DEVELOPMENT SERVICE

EFFECT OF TEMPERATURE AND HUMIDITY ON AIRCRAFT NOISE PROPAGATION. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
SEP 75 106P MCCOLLOUGH,'JB' ;TRUE,
HAROLD C. ;
REPT. NO. FAA-RD-75-100

UNCLASSIFIED REPORT

DESCRIPTORS: *AIRCRAFT NOISE, *SOUND TRANSMISSION, PEAK VALUES, ATMOSPHERIC TEMPERATURE, HUMIDITY, ACOUSTIC MEASUREMENT, INTENSITY, ATMOSPHERES, TEMPERATURE INVERSION, HIGH ALTITUDE, LOW ALTITUDE, THRUST, ABSORPTION, LAPSE RATE, LAYERS, ACOUSTIC PROPERTIES, NUMERICAL METHODS AND PROCEDURES, CORRECTIONS, DATA REDUCTION, JET TRANSPORT PLANES, WEATHER, SPECTRUM ANALYSIS, JET ENGINE NOISE, TEST METHODS, STANDARDIZATION, METEOROLOGICAL DATA (U)
IDENTIFIERS: DC-9 AIRCRAFT (U)

THIS REPORT PRESENTS THE RESULTS OF A TEST PROGRAM CONDUCTED TO MEASURE THE EFFECT OF VARYING METEOROLOGICAL CONDITIONS ON AIRCRAFT FLYOVER NOISE LEVELS. DETAILED TEMPERATURE AND HUMIDITY DATA WERE OBTAINED USING AN INSTRUMENT SYSTEM CARRIED BY A LIGHT AIRCRAFT. HIGH AND LOW ALTITUDE INVERSIONS AS WELL AS STANDARD LAPSE RATE ATMOSPHERES WERE INVESTIGATED. LEVEL FLYOVERS WERE CONDUCTED, USING A DC-9-10 AIRCRAFT OPERATED AT A THRUST OF 6,000 LBS., AS A CONSTANT NOISE SOURCE. MEASURED NOISE LEVELS VARIED UP TO 4 EPNDB DEPENDING UPON THE ABSORPTIVE PROPERTIES OF THE ATMOSPHERE. SEVERAL ANALYSIS PROCEDURES WERE INVESTIGATED IN AN EFFORT TO CORRECT NOISE DATA FOR WEATHER CONDITIONS. WEATHER CORRECTION PROCEDURES BASED ON SINGLE POINT METEOROLOGICAL DATA WERE INADEQUATE TO NORMALIZE, TO REFERENCE CONDITIONS, THE NOISE DATA FOR THOSE CONDITIONS WITH NON-UNIFORM TEMPERATURE AND HUMIDITY PROFILES. A LAYERED ANALYSIS PROCEDURE, HOWEVER, NORMALIZED ALL FLYOVER NOISE LEVELS TO THOSE LEVELS TAKEN UNDER NEAR REFERENCE CONDITIONS. THE LAYERED ANALYSIS PROCEDURE INCREMENTALLY ADJUSTS THE MEASURED PEAK SPECTRA BASED ON THE ACOUSTIC ABSORPTION IN EACH INCREMENT.

(U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A014 964 1/2 20/1 1/3
BOEING COMMERCIAL AIRPLANE CO SEATTLE WASH

AIRCRAFT NOISE DEFINITION. INDIVIDUAL AIRCRAFT TECHNICAL DATA MODEL - 737. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
DEC 73 137P WILLIAMS,B. G. ;YATES,R. ;
REPT. NO. D6-42141-3
CONTRACT: DOT-FA73WA-3254
MONITOR: FAA-EQ 73-7-4

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT AD-A013 177.

DESCRIPTORS: *COMMERCIAL AIRCRAFT, *TRANSPORT AIRCRAFT, *AIRCRAFT NOISE, GRAPHICS, TAKEOFF, APPROACH, AIRPORTS, ACOUSTIC DATA, CHARTS, PERFORMANCE, NOISE(SOUND), FLIGHT MANEUVERS (U)
IDENTIFIERS: BOEING 727 AIRCRAFT, DOT/4DZ/DA, DOT/5B (U)

TECHNICAL DATA ARE PRESENTED FOR GRAPHICALLY DETERMINING TAKEOFF, CUTBACK, AND APPROACH PERFORMANCE AND NOISE UNDER THE FLIGHTPATH FOR VARIOUS BOEING MODEL 737 AIRCRAFT CURRENTLY IN OPERATION. DATA ARE INCLUDED FOR ALL CERTIFIED FLAP POSITIONS AND COVER OPERATIONS FROM AIRPORTS FROM SEA LEVEL TO 6000 FT ALTITUDE AT TEMPERATURES FROM 30 TO 100F WITH WINDS FROM -10 TO +30 KN OVER THE ENTIRE OPERATIONAL WEIGHT RANGE. NOISE DATA ARE SHOWN FOR UNITS TO EPNDB AND DB(A) FROM TAKEOFF TO LOW APPROACH THRUST AND FOR AIRCRAFT ALTITUDES BETWEEN 200 TO 12,000 FT. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A015 688 21/5 20/1
PRINCETON UNIV N J DEPT OF AEROSPACE AND MECHANICAL SCIENCES

RESEARCH ON NOISE GENERATED BY DUCTED AIR-FUEL COMBUSTION SYSTEMS. (U)

DESCRIPTIVE NOTE: ANNUAL REPT. NO. 4, MAR 74-JUL 75, AUG 75 47P PLETT,E. G. ;SHAFER,H. J. ;SUMMERFIELD,M. ;
CONTRACT: N00014-67-A-0150-0029, N00014-75-C-0507

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO ANNUAL REPT. NO. 3, AD-785 028.

DESCRIPTORS: *GAS TURBINES, *JET ENGINE NOISE, COMBUSTORS, DUCTED BODIES, COMBUSTION, FUELS, AIR FLOW, NOISE REDUCTION (U)
IDENTIFIERS: *COMBUSTION NOISE, *NOISE GENERATION, *NOISE SOURCES (U)

A TWO-PRONGED APPROACH TO THE STUDY OF NOISE GENERATION BY COMBUSTION IN A CONFINED FLOW SYSTEM, SIMILAR TO A JET ENGINE CONFIGURATION, HAS BEEN FOLLOWED. ONE ASPECT DEALS WITH THE MECHANISMS OF NOISE GENERATION BY COMBUSTION; THE OTHER ASPECT DEALS WITH THE EFFECT OF CONFINEMENT ON THE NOISE GENERATION AND RADIATING PROPERTIES OF AN UNSTEADY COMBUSTION-DUCT-FLOW INTERACTION. AN EXPERIMENT TO EVALUATE THE RELATIVE IMPORTANCE OF SEVERAL OF THE TERMS APPEARING IN THE THEORETICAL FORMULATION DESCRIBING COMBUSTION NOISE SOURCES HAS BEEN DEVELOPED. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A016 278 1/3 20/1
DOUGLAS AIRCRAFT CO LONG BEACH CALIF

AIRCRAFT NOISE DEFINITION. PHASE I. ANALYSIS OF EXISTING DATA FOR THE DC-8, DC-9 AND DC-10 AIRCRAFT. (U)

DESCRIPTIVE NOTE: FINAL REPT. OCT 72-AUG 73,
AUG 73 373P GOODMAN,J. S. ;
REPT. NO. MDC-J5973
CONTRACT: DOT-FA73WA-3161
MONITOR: FAA-EQ 73-5

UNCLASSIFIED REPORT

DESCRIPTORS: *COMMERCIAL AIRCRAFT, *JET AIRCRAFT, *AIRCRAFT NOISE, AERODYNAMIC NOISE, JET ENGINE NOISE, FLIGHT PATHS, FLYBY, ACOUSTICS, COMPUTER PROGRAMS, APPROACH, GLIDE SLOPE (U)
IDENTIFIERS: DC-8 AIRCRAFT, DC-9 AIRCRAFT, DC-10 AIRCRAFT, T-3 ENGINES, JT3D ENGINES, T-8 ENGINES, JT8D-7 ENGINES, JT8D-9 ENGINES, *NOISE LEVELS, DOT/4DZ/DA (U)

THE EFFORTS IN THIS PHASE OF THE 'AIRCRAFT NOISE DEFINITION' PROJECT WAS COMPRISED OF PROCESSING AND ANALYSIS OF EXISTING ACOUSTIC AND PERFORMANCE DATA AND PREPARING ACOUSTIC AND PERFORMANCE (BASED ON AVERAGE ENGINE) GRAPHICAL AND COMPUTER PRESENTATIONS FOR TWO JT3D TURBOFAN-POWERED DC-8S, ONE WITH SHORT AND ONE WITH LONG FAN DUCTS; TWO DC-9S, ONE WITH JT8D-7 AND ONE WITH JT8D-9 ENGINES; AND THE DC-10-10 AND DC-10-40 AIRCRAFT. THE ACOUSTIC DATA INCLUDED REFERENCE-DAY EPNL AND PEAK A-WEIGHTED SOUND LEVEL CURVES WITH EMPIRICALLY DEVELOPED CURVES FOR ADJUSTING THE NOISE LEVELS TO TEMPERATURES FROM 30F TO 100F WITH THE RELATIVE HUMIDITY HELD CONSTANT AT 70 PERCENT. THE PERFORMANCE DATA INCLUDE PROVISIONS FOR A TEMPERATURE VARIATION FROM 30F TO 100F AND RUNWAY ALTITUDE FROM SEA LEVEL TO 6000 FEET. DATA ACCURACY IS DESCRIBED IN TERMS OF ASSIGNABLE CONFIDENCE LIMITS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A017 082 20/1 13/13 1/2
BOOZ-ALLEN APPLIED RESEARCH INC BETHESDA MD

ANALYSIS OF THE EFFECT OF CONCORDE AIRCRAFT NOISE ON HISTORIC STRUCTURES. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUL 75 78P HERSHEY,ROBERT L. ;KEVALA, RUSS J. ;BURNS,SHARON L. ;
CONTRACT: DOT-FA75WA-3720
MONITOR: FAA-RD 75-118

UNCLASSIFIED REPORT

DESCRIPTORS: *AIRCRAFT NOISE, DAMAGE ASSESSMENT, BUILDINGS, VIBRATION, FLIGHT PATHS, SUBSONIC FLIGHT, STRUCTURAL MEMBERS, BRIDGES, HISTORY, MATHEMATICAL PREDICTION, WINDOWS, CEILING, GLASS, STRUCTURAL RESPONSE, CRACKS, FAILURE(MECHANICS), PROBABILITY DENSITY FUNCTIONS, NOISE POLLUTION, ENVIRONMENTAL PROTECTION, JET TRANSPORT PLANES, TAKEOFF, AIRCRAFT LANDINGS (U)
IDENTIFIERS: CONCORDE AIRCRAFT, ENVIRONMENTAL IMPACT, DOT/5C, DOT/5M (U)

STATISTICAL ESTIMATES OF BREAKAGE PROBABILITIES FROM NOISE-INDUCED VIBRATION WERE CALCULATED FOR SUSCEPTIBLE STRUCTURAL ELEMENTS AT FIVE HISTORIC SITES NEAR THE PROPOSED SUBSONIC FLIGHT PATH OF THE CONCORDE AIRCRAFT. THE FIVE SITES INVESTIGATED WERE: SULLY PLANTATION, CHANTILLY, VA.; DRANESVILLE TAVERN, DRANESVILLE, VA.; BROAD RUN BRIDGE AND TOLLHOUSE, LOUDOUN COUNTY, VA.; MANASSAS BATTLEFIELD PARK, MANASSAS, VA.; AND ST. GEORGE'S CHURCH, HEMPSTEAD, N. Y. THE STRUCTURAL FEATURES ANALYZED INCLUDED WINDOWS, BRICK CHIMNEYS, STONE BRIDGE, AND A PLASTER CEILING. THE CALCULATED BREAKAGE PROBABILITIES FOR THESE FEATURES WERE GENERALLY LESS THAN .001 FOR A YEAR OF PROJECTED CONCORDE OVERFLIGHTS--CONSIDERABLY BELOW THE FAILURE RATE THAT WOULD BE EXPECTED JUST FROM EXPOSURE TO THE WEATHER. THE ONLY EXCEPTION WAS THE PROBABILITY OF BREAKAGE OF LITES OF GLASS AT SULLY PLANTATION WHICH WERE ALREADY CRACKED AND ARE EXPECTED TO BE REPLACED. THE RESPONSE PROBABILITY DENSITY FUNCTION TECHNIQUE, USED IN PREVIOUS STUDIES OF STRUCTURAL RESPONSE TO AIRCRAFT NOISE, WAS THE METHOD OF CALCULATION. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A017 741 20/11 1/3 13/2
BOLT BERANEK AND NEWMAN INC CANOGA PARK CALIF

COMMUNITY NOISE EXPOSURE RESULTING FROM AIRCRAFT OPERATIONS: ACQUISITION AND ANALYSIS OF AIRCRAFT NOISE AND PERFORMANCE DATA. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
AUG 75 145P BISHOP,DWIGHT E. ;GALLOWAY, WILLIAM J. ;
REPT. NO. BBN-2583
CONTRACT: F33615-73-C-4160
PROJ: AF-7231
TASK: 723104
MONITOR: AMRL TR-73-107

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED NOV 74, AD-A004 822.

DESCRIPTORS: *AIRCRAFT NOISE, *URBAN AREAS, *NOISE POLLUTION, AIRPORTS, AIRCRAFT ENGINE NOISE, NOISE ANALYZERS, DATA REDUCTION, NOISE REDUCTION, ACOUSTIC MEASUREMENT (U)
IDENTIFIERS: *NOISE LEVELS, *NOISE EXPOSURE (U)

THIS REPORT IS ONE OF A SERIES DESCRIBING THE RESEARCH PROGRAM UNDERTAKEN BY THE AEROSPACE MEDICAL RESEARCH LABORATORY TO DEVELOP PROCEDURES FOR PREDICTING COMMUNITY NOISE EXPOSURE RESULTING FROM AIRCRAFT OPERATIONS. THIS REPORT OUTLINES THE ACOUSTIC MEASUREMENT TEST CONDITIONS, THE ACOUSTIC DATA REDUCTION AND INTERPRETATION PROCEDURES, AND THE TYPE OF AIRCRAFT PERFORMANCE INFORMATION NEEDED TO OBTAIN A NOISE DATA FILE FOR PREDICTING THE NOISE PRODUCED BY AIRCRAFT OPERATIONS. THE PROCEDURES RESULT IN THE DESCRIPTIONS OF THE NOISE OF AN AIRCRAFT IN TERMS OF THE EFFECTIVE PERCEIVED NOISE LEVEL, THE SOUND EXPOSURE LEVEL AND SEVERAL OTHER NOISE MEASURES. LEVEL FLIGHT MEASUREMENTS AND STATIC ENGINE NOISE TESTS ARE DESCRIBED, AND ARE APPLICABLE TO CONVENTIONAL FIXED WING AIRCRAFT AND HELICOPTERS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A018 036 20/1 1/2 5/10
MAN-ACOUSTICS AND NOISE INC SEATTLE WASH

NOISE CERTIFICATION CRITERIA AND IMPLEMENTATION CONSIDERATIONS FOR V/STOL AIRCRAFT. VOLUME I. (U)

DESCRIPTIVE NOTE: FINAL REPT.
NOV 75 84P
REPT. NO. MAN-101H
CONTRACT: DOT-FA74WAI-490
MONITOR: FAA-RD 75-190

UNCLASSIFIED REPORT

DESCRIPTORS: *COMMERCIAL AIRCRAFT, *AIRCRAFT NOISE, *SHORT TAKEOFF AIRCRAFT, *PSYCHOPHYSICS, INTENSITY, EXPERIMENTAL DATA, TEST METHODS, HUMAN FACTORS ENGINEERING, MAGNETIC TAPE, STANDARDS, VERTICAL TAKEOFF AIRCRAFT, RATINGS (U)
IDENTIFIERS: ANNOYANCE, NOISE LEVELS, CERTIFICATION, JUDGMENT, CRITERIA, DOT/2A, DOT/5B (U)

AS A MEANS OF DETERMINING THE ACCURACY AND RELIABILITY OF ENGINEERING CALCULATION PROCEDURES THAT COULD BE UTILIZED AS A BASIS FOR NOISE CERTIFICATION OF V/STOL COMMERCIAL AIRCRAFT, 36 PERSONS MADE ANNOYANCE JUDGMENTS TO 34 NOISE SIGNALS PRESENTED AT 5 DIFFERENT LEVELS. THE SIGNALS INCLUDED RECORDINGS OF CONVENTIONAL JET AIRCRAFT OPERATIONS, TURBOPROP AND RECIPROCATING ENGINE POWERED COMMERCIAL AIRCRAFT, HELICOPTER FLYBYS, AND SIMULATIONS OF V/STOL OPERATIONS. BOTH RELATIVE ANNOYANCE AND ABSOLUTE ACCEPTABILITY JUDGMENTS WERE OBTAINED. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A019 759 20/1 1/2
DOUGLAS AIRCRAFT CO LONG BEACH CALIF

AIRCRAFT NOISE DEFINITION. PHASE II. ANALYSIS OF FLYOVER-NOISE DATA FOR THE DC-8-61 AIRCRAFT. (U)

DESCRIPTIVE NOTE: FINAL REPT. NOV 73-AUG 74, AUG 74 172P DELAPP,R. E. ;
REPT. NO. MDC-J4443
CONTRACT: DOT-FA73WA-3161
MONITOR: FAA-EQ 74-5

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED AUG 73, AD-A016 278.

DESCRIPTORS: *AIRCRAFT NOISE, *COMMERCIAL AIRCRAFT, *JET AIRCRAFT, DEFINITIONS, DATA BASES, LONG RANGE(DISTANCE), FLYBY, ALTITUDE, FLIGHT PATHS, DATA ACQUISITION, VARIATIONS, CONFIDENCE LIMITS, WEATHER, FLIGHT TESTING, ACOUSTIC MEASUREMENT, ATTENUATION, PROPAGATION, DATA PROCESSING, THRUST, UPPER ATMOSPHERE (U)
IDENTIFIERS: DOT/4DZ/DA, DOT/5B, DC-8 AIRCRAFT (U)

PHASE 2 OF THE 'AIRCRAFT NOISE DEFINITION' PROGRAM CONSISTED OF A DC-8-61 FLIGHT TEST PROGRAM WITH AN OBJECTIVE TO IMPROVE THE STATISTICAL ACCURACY OF THE NOISE DATA REPORTED IN PHASE 1 OF THE PROGRAM AND TO BROADEN THE DATA TO INCLUDE MEASUREMENTS AT LONG DISTANCES AND AT A THRUST REQUIRED FOR A STEEP APPROACH. NOISE MEASUREMENTS WERE MADE DURING FLYOVERS UP TO AN ALTITUDE OF 8000 FEET, AT SIDELINE DISTANCES UP TO 8000 FEET AND AT TARGET THRUSTS OF 15,000, 10,000, 5000, 3200, AND 2000 POUNDS. THIS DOCUMENT REPORTS THE DATA ACQUISITIONS, THE ANALYSIS PROCEDURE, AND THE RESULTS IN TERMS OF VARIATIONS IN REFERENCE-DAY EPNL AND A-WEIGHTED SOUND LEVEL WITH SLANT RANGE; OVERHEAD TO SIDELINE NOISE LEVEL RELATIONSHIP; AND DATA SHOWING LATERAL NOISE ATTENUATIONS. DATA ACCURACY IS DESCRIBED IN TERMS OF ASSIGNABLE CONFIDENCE LIMITS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A022 356 6/19 5/10 1/2
MAN-ACOUSTICS AND NOISE INC SEATTLE WASH

REVIEW OF STUDIES INVESTIGATING HUMAN RESPONSE TO COMMERCIAL AIRCRAFT NOISE. (U)

DESCRIPTIVE NOTE: FINAL REPT.
NOV 75 156P
REPT. NO. MAN-1011B
CONTRACT: DOT-FA74WAI-439
MONITOR: FAA-RD 75-182

UNCLASSIFIED REPORT

DESCRIPTORS: *STRESS(PHYSIOLOGY), *AIRCRAFT NOISE, *COMMERCIAL AIRCRAFT, *NOISE, RESPONSE(BIOLOGY), HUMANS, REVIEWS, AIRPORTS, EXPERIMENTAL DATA, AUDITORY PERCEPTION, HEARING (U)
IDENTIFIERS: *NOISE POLLUTION, ENVIRONMENTAL HEALTH (U)

THE REPORT REVIEWS EMPIRICAL STUDIES INVOLVING HUMAN RESPONSE TO COMMERCIAL AIRCRAFT/AIRPORT NOISE. THE REVIEW WAS LIMITED TO STUDIES THAT INVOLVED RESPONSE TO ACTUAL OR RECORDED FLYOVER SIGNALS OF CONVENTIONAL TAKEOFF AND LANDING (CTOL) AIRCRAFT. STUDY SUMMARIES ARE PROVIDED FOR THE STUDIES REVIEWED. THESE SUMMARIES INCLUDED STUDY AIM, NUMBER OF SUBJECTS, TYPE OF AIRCRAFT SIGNALS, AND RESULTS. STUDY METHODS IDENTIFIED WERE LABORATORY, FIELD STUDIES, SOCIAL SURVEY APPROACH, COMPLAINT STUDIES, DAMAGE RISK, INTERFERENCE TYPE STUDIES, AND COMBINATION METHODS. LABORATORY METHODS HAVE DOMINATED RESEARCH WORK IN THIS AREA AND WITH THE EXCEPTION OF THE SOCIAL SURVEY AND COMPLAINT METHODS, EMPHASIS HAS BEEN ON RESPONSE TO INDIVIDUAL FLYOVER EVENTS. A FEW RECENT STUDIES HAVE STUDIED RESPONSE TO NUMBER OF EVENTS OVER TIME, PARTICULARLY INTERFERENCE TYPE STUDIES. RESEARCH NEEDS ARE IDENTIFIED EMPHASIZING THE MORE REALISTIC METHODS WHICH INVESTIGATE HUMAN RESPONSE TO MULTIPLE EVENTS OVER TIME. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A022 911 20/1
BOLT BERANEK AND NEWMAN INC CANOGA PARK CALIF

COMMUNITY NOISE EXPOSURE RESULTING FROM AIRCRAFT OPERATIONS. APPENDIX: NOISEMAP PROGRAM OPERATOR'S MANUAL. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
FEB 76 29P REDDINGIUS,NICOLAAS H. ;
REPT. NO. BBN-2946
CONTRACT: F33615-75-C-5044
PROJ: AF-7231
TASK: 723104
MONITOR: AMRL TR-73-108-APP

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: APPENDIX TO REPORT DATED JUL 74, AD-785 360.

DESCRIPTORS: *AIRCRAFT NOISE, *MILITARY FACILITIES, *NOISE POLLUTION, *COMPUTER PROGRAMMING, COMPUTERIZED SIMULATION, DIURNAL VARIATIONS, URBAN AREAS, AIRPORTS, RUNWAYS, FLIGHT PATHS, EXPOSURE(PHYSIOLOGY), VIBRATION, DIAGNOSIS(GENERAL), LAND USE, USER NEEDS, ENVIRONMENTAL IMPACT STATEMENTS, AIR FORCE OPERATIONS, AREA COVERAGE, FORTRAN, COMPUTER PROGRAMS, COMMUNITY RELATIONS (U)
IDENTIFIERS: NOISEMAP COMPUTER PROGRAMS, GROUND RUNUP, NOISE EXPOSURE (U)

THIS REPORT DELINEATES THE PROGRAM OPERATOR CHANGES CONSISTENT WITH THE ADDITIONAL DEVELOPMENTS MADE ON THE COMPUTER PROGRAM DESCRIBED IN AMRL-TR-73-109 (AD-A004 821). THE ADDED CAPABILITIES AND IMPROVED DIAGNOSTICS THAT FORM NOISEMAP 3.2 ARE DISCUSSED. NOISEMAP 3.2 IS USED AIR FORCE-WIDE TO COMPUTE COMMUNITY NOISE EXPOSURE FROM AIRCRAFT FLYING AND GROUND RUNUP OPERATIONS FOR PREPARING/ ASSESSING CANDIDATE ENVIRONMENTAL IMPACT STATEMENTS AND PLANNING COMPATIBLE LAND USE IN THE VICINITY OF AIR INSTALLATIONS. IMPROVEMENTS MADE TO NOISEMAP INCLUDE: (1) OPTIONAL OUTPUTS IN TERMS OF DAY-NIGHT AVERAGE SOUND LEVEL, NOISE EXPOSURE FORECAST, AND THESE MEASURES WITH TONE CORRECTION AND GROUND RUNUP PENALTY WEIGHTINGS; (2) OPTIONAL CONTOUR PLOTTING ON A LINE PRINTER WHEN SOPHISTICATED CONTOUR PLOTTING SOFTWARE AND HARDWARE ARE NOT AVAILABLE; (3) OPTIONAL CAPABILITY TO PERFORM THE NOISE EXPOSURE COMPUTATIONS OVER LIMITED AREAS RATHER THAN THE ENTIRE AIRBASE (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A023 037 20/1 1/3
BOEING CO WICHITA KANS WICHITA DIV

FAA JT3D QUIET NACELLE RETROFIT FEASIBILITY PROGRAM. VOLUME II. ADDENDUM A. MODEL AND FULL SCALE PLUG NOZZLE TESTS. (U)

DESCRIPTIVE NOTE: FINAL REPT. JUL 74-MAR 75, APR 75 222P MAYER,J. E. ;LINSCHEID,L. L. ;VELDMAN,H. F. ;
REPT. NO. D3-9042-6
CONTRACT: DOT-FA71WA-2628
MONITOR: FAA-RD 73-131-2-ADD-A

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: ADDENDUM A TO REPT. NO. D3-9042-3, DATED APR 74, AD-A012 969.

DESCRIPTORS: *JET ENGINE NOISE, *JET ENGINE NACELLES, *NOISE REDUCTION, *PLUG NOZZLES, *JET TRANSPORT PLANES, RETROFITTING, NOISE POLLUTION, ACOUSTICS, MODEL TESTS, FULL SCALE SYSTEMS (U)
IDENTIFIERS: *QUIET NACELLES, T-3 ENGINES, JT-3D ENGINES, BOEING 707 AIRCRAFT (U)

PREVIOUS TESTS OF PLUG NOZZLES (DOCUMENTED IN VOLUME 2 OF THIS REPORT) RESULTED IN CONFLICTING EVIDENCE OF ACOUSTIC SUPPRESSION. MODEL SCALE PLUG NOZZLES PROVIDED SIGNIFICANT JET NOISE SUPPRESSION; LIMITED OR NO NOISE SUPPRESSION WAS OBSERVED DURING TESTS OF FULL SCALE PLUG NOZZLES. THE TESTS REPORTED IN THIS ADDENDUM WERE PERFORMED TO IDENTIFY THE REASON FOR NONCORRELATION BETWEEN MODEL AND FULL SCALE ACOUSTIC RESULTS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A023 429 13/2 1/5 20/1
BOLT BERANEK AND NEWMAN INC CANOGA PARK CALIF

DEVELOPING NOISE EXPOSURE CONTOURS FOR GENERAL AVIATION AIRPORTS. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
DEC 75 203P BISHOP,DWIGHT E. ;HAYS,
ANTHONY P. ;
REPT. NO. BBN-2964
CONTRACT: DOT-FA75WA-3710
MONITOR: FAA-AS 75-1

UNCLASSIFIED REPORT

DESCRIPTORS: *NOISE POLLUTION, *AIRPORTS, *AIRCRAFT NOISE, *NOISE, CIVIL AVIATION, NOISE(SOUND), EXPOSURE(GENERAL), CONTOURS, DAY, NIGHT, FORECASTING, JET PLANE NOISE, PROPELLER NOISE (U)
IDENTIFIERS: GENERAL AVIATION (U)

THIS REPORT DESCRIBES A PROCEDURE FOR GENERATING NOISE CONTOURS AROUND GENERAL AVIATION AIRPORTS USING THREE UNITS OF NOISE EXPOSURE: COMPOSITE NOISE RATING (CNR), NOISE EXPOSURE FORECAST (NEF), AND DAY/NIGHT LEVELS (LDN). THE PROCEDURE IS TO DETERMINE THE NUMBER OF ANNUAL OPERATIONS AT AN AIRPORT, AND TO APPLY A WEIGHTING TO THIS NUMBER TO ACCOUNT FOR SUCH EFFECTS AS MULTI-ENGINE AND NIGHTTIME OPERATIONS; PROPELLER AND JET OPERATIONS ARE CONSIDERED SEPARATELY. A SERIES OF NOISE CONTOUR MAPS ARE PROVIDED IN THE REPORT FOR A WIDE RANGE OF NUMBERS OF ANNUAL OPERATIONS, BASED ON STANDARD FLIGHT TRACKS. THE APPROPRIATE MAPS SHOULD BE SELECTED (TAKING ACCOUNT OF MIXED PROPELLER AND JET OPERATIONS, MULTIPLE RUNWAY USAGE, ETC.) ENLARGED AND COMBINED BY LOGARITHMIC ADDITION OF NOISE EXPOSURE LEVELS TO PRODUCE AN OVERALL SET OF NOISE CONTOURS FOR THE AIRPORT. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A024 403 20/1
NAVAL AIR ENGINEERING CENTER LAKEHURST N J GROUND SUPPORT EQUIPMENT DEPT

EXPERIMENTAL EVALUATION OF NAS MIRAMAR HUSH HOUSE (PROJECT P-114). VOLUME I. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
FEB 76 147P SULE,W. P. ;PULCHER,E. T. ;
REPT. NO. NAEC-GSED-96-VOL-1
PROJ: A534-534B/200-D/5W455-000

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-A024 404.

DESCRIPTORS: *AIRCRAFT NOISE, *AEROTHERMODYNAMICS, *NOISE REDUCTION, *SUPPRESSION, SCALE MODELS, DATA ACQUISITION, MODEL TESTS, TEST FACILITIES, ACOUSTIC DATA, RELIABILITY, TEST AND EVALUATION, ESTIMATES, GROUND SUPPORT EQUIPMENT (U)
IDENTIFIERS: A-4 AIRCRAFT, F-8 AIRCRAFT, F-4 AIRCRAFT, F-14 AIRCRAFT, HUSH HOUSE PROJECT (U)

THIS REPORT SUMMARIZES THE RESULTS OF AN EXTENSIVE EXPERIMENTAL TEST AND EVALUATION OF THE NEW NAS MIRAMAR HUSH HOUSE. THE TESTS CONSISTED OF BOTH AERO-THERMODYNAMIC AND ACOUSTIC DATA ACQUISITION. FOUR DIFFERENT AIRCRAFT (A-4, F-8, F-4, F-14) WERE RUN IN THE FACILITY AND ACOUSTIC DATA WAS OBTAINED ON TWO OF THE AIRCRAFT (F-4, F-14). THE RESULTS OF THE FULL SIZE TESTING WERE COMPARED WITH 1/15TH SCALE MODEL TESTS RESULTS TO ESTIMATE THE RELIABILITY OF SCALE MODEL TESTS FOR THIS APPLICATION. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A024 404 20/1
NAVAL AIR ENGINEERING CENTER LAKEHURST N J GROUND SUPPORT EQUIPMENT DEPT

EXPERIMENTAL EVALUATION OF NAS MIRAMAR HUSH HOUSE (PROJECT P-114). VOLUME II, (U)

FEB 76 387P SULE,W. P. ;PULCHER,E. T. ;
REPT. NO. NAEC-GSED-96-VOL-2
PROJ: A534-534B/200-D/5W455-000

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 1, AD-A024 403.

DESCRIPTORS: *AIRCRAFT NOISE, *AEROTHERMODYNAMICS, *NOISE REDUCTION, *SUPPRESSION, SOUND PRESSURE, ACOUSTIC DATA, ACOUSTIC MEASUREMENT, TEST AND EVALUATION, GROUND SUPPORT EQUIPMENT (U)
IDENTIFIERS: HUSH HOUSE PROJECT, A-4 AIRCRAFT, F-8 AIRCRAFT, F-4 AIRCRAFT, F-14 AIRCRAFT (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A024 958 21/5 20/1 13/2 1/3
TENNESSEE UNIV SPACE INST TULLAHOMA

INVESTIGATION OF FEASIBLE NOZZLE CONFIGURATIONS FOR NOISE REDUCTION IN TURBOFAN AND TURBOJET AIRCRAFT. VOLUME 1. SUMMARY AND MULTINOZZLE CONFIGURATIONS. (U)

DESCRIPTIVE NOTE: FINAL REPT. JUN 72-JUL 75, JUL 75 328P GOETHERT,B. H. ;MAUS,J. R. ;DUNHILL,WILLIAM A. ;BORCHERS,INGO U. ;
CONTRACT: DOT-FA72WA-3053
MONITOR: FAA-RD 75-162-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: INCLUDES ERRATA DATED 19 MAY 76. SEE ALSO VOLUME 2, AD-A024 959.

DESCRIPTORS: *JET ENGINE NOISE, *TURBOFAN ENGINES, *TURBOJET ENGINES, *NOISE REDUCTION, *TURBOJET EXHAUST NOZZLES, *AERODYNAMIC NOISE, VERTICAL TAKEOFF AIRCRAFT, SHORT TAKEOFF AIRCRAFT, FLAPS(CONTROL SURFACES), AERODYNAMIC SLOTS, CIRCULAR, MULTIMODE, LINEAR ARRAYS, CONFIGURATIONS, DUAL MODE, TEST FACILITIES, NOISE POLLUTION, SUPPRESSION, ATTENUATION, SUPERSONIC TRANSPORTS (U)
IDENTIFIERS: SLOT NOZZLES, SHROUDS (U)

THIS REPORT DESCRIBES THE MAJOR RESEARCH ACTIVITIES CARRIED OUT AND THE PRINCIPAL RESULTS OBTAINED DURING A THREE YEAR RESEARCH EFFORT BY THE UNIVERSITY OF TENNESSEE SPACE INSTITUTE FOR THE FEDERAL AVIATION ADMINISTRATION. THE MAJOR OBJECTIVE OF THIS RESEARCH WAS TO DEVELOP TECHNIQUES FOR REDUCING THE NOISE GENERATED BY HIGH VELOCITY JET STREAMS EXHAUSTING FROM A WIDE VARIETY OF NOZZLE CONFIGURATION. IN ADDITION TO EXPLORING TECHNIQUES FOR NOISE SUPPRESSION AND/OR REDIRECTION, EMPHASIS WAS PLACED ON INVESTIGATING THE PHYSICAL MECHANISMS AT WORK IN GENERATION, SUPPRESSION, AND REDIRECTION OF AERODYNAMIC NOISE. THE REPORT CONSISTS OF THREE VOLUMES AND IS DIVIDED INTO SEVERAL SECTIONS EACH DEALING WITH A SEPARATE PART OF THE RESEARCH EFFORT. THIS VOLUME CONTAINS AN OVERALL SUMMARY OF THE WORK, A DESCRIPTION OF THE FACILITIES USED AND A DESCRIPTION OF THE RESULTS OBTAINED ON LINEAR ARRAYS OF CIRCULAR NOZZLES AND DUAL NOZZLES WITH SHROUDS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A024 959 21/5 20/1 13/2 1/3
TENNESSEE UNIV SPACE INST TULLAHOMA

INVESTIGATION OF FEASIBLE NOZZLE CONFIGURATIONS FOR NOISE REDUCTION IN TURBOFAN AND TURBOJET AIRCRAFT. VOLUME II. SLOT NOZZLE CONFIGURATION. (U)

DESCRIPTIVE NOTE: FINAL REPT. JUN 72-JUL 75, JUL 75 341P GOETHERT,B. H. ;MAUS,J. R. ;DUNHILL,WILLIAM A. ;PATTERSON,GRANT T. ; JOSHI,MAHENDRA C. ;
CONTRACT: DOT-FA72WA-3053
MONITOR: FAA-RD 75-162-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: INCLUDES ERRATA DATED 19 MAY 76. SEE ALSO VOLUME 1, AD-A024 958.

DESCRIPTORS: *JET ENGINE NOISE, *TURBOFAN ENGINES, *TURBOJET ENGINES, *NOISE REDUCTION, *TURBOJET EXHAUST NOZZLES, *AERODYNAMIC NOISE, VERTICAL TAKEOFF AIRCRAFT, SHORT TAKEOFF AIRCRAFT, FLAPS(CONTROL SURFACES), TWO DIMENSIONAL, AERODYNAMIC SLOTS, CONFIGURATIONS, FLUID DYNAMICS, NOISE POLLUTION, SUPPRESSION, ATTENUATION, ACOUSTICS, MODELS, MATHEMATICAL MODELS, LITERATURE SURVEYS (U)
IDENTIFIERS: *SLOT NOZZLES (U)

THIS VOLUME CONTAINS A DESCRIPTION OF RESULTS OBTAINED FOR TWO DIMENSIONAL RECTANGULAR SLOT NOZZLES WITHOUT AND WITH STRAIGHT ATTACHED FLAPS. THREE APPENDICES ARE INCLUDED IN THIS VOLUME CONTAINING RESULTS OF OTHER RESEARCH ACTIVITIES. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A025 979 20/1 14/2
ARMY AIR MOBILITY RESEARCH AND DEVELOPMENT LAB MOFFETT FIELD CALIF

IN-FLIGHT FAR-FIELD MEASUREMENT OF HELICOPTER IMPULSIVE NOISE, (U)

76 15P BOXWELL,DONALD A. ;SCHMITZ, FREDRIC H. ;

UNCLASSIFIED REPORT

DESCRIPTORS: *AIRCRAFT NOISE, *IMPULSE NOISE, HELICOPTERS, ROTOR BLADES(ROTARY WINGS), ACOUSTIC SIGNATURES, FLIGHT TESTING, FAR FIELD, ACOUSTIC DATA, HELICOPTER ROTORS, INFLIGHT, EXPERIMENTAL DESIGN, RADIATED NOISE, DIRECTIONAL, LOW FREQUENCY, FLIGHT MANEUVERS, VORTICES, AERODYNAMIC LOADING, FLIGHT PATHS, DESCENT, AIRSPEED, HIGH VELOCITY (U)
IDENTIFIERS: H-1 AIRCRAFT, UH-1H AIRCRAFT-1, BLADE SLAP, BLADE TIPS (U)

AN IN-FLIGHT TECHNIQUE FOR MEASURING UH-1H HELICOPTER IMPULSIVE NOISE (SOMETIMES CALLED 'BLADE SLAP') BY STATIONKEEPING WITH A QUIET INSTRUMENTED LEAD AIRCRAFT WAS FOUND TO BE HIGHLY SUCCESSFUL. FAR-FIELD QUANTITATIVE ACOUSTIC WAVEFORMS AND RADIATION PATTERNS WERE EASILY OBTAINED OVER A WIDE, CONTINUOUS RANGE OF UH-1H FLIGHT CONDITIONS, INCLUDING SEVERAL AREAS KNOWN TO PRODUCE ANNOYING ACOUSTIC RADIATION. THE DATA COLLECTED USING THIS TECHNIQUE WERE NOT (TO ANY SIGNIFICANT DEGREE) CONTAMINATED BY TRANSMISSION PATH DISTORTIONS THAT HAVE HINDERED MEASUREMENT EFFORTS IN THE PAST. THE TWO MAJOR FINDING OF THIS INITIAL MEASUREMENT PROGRAM WERE: (1) JUDGING THE OCCURRENCE AND SEVERITY OF A HELICOPTER'S RADIATED IMPULSIVE NOISE SIGNATURE FROM CABIN-BASED NOISE MEASUREMENTS CAN BE MISLEADING. FOR THE UH-1H HELICOPTER, REDUCTION IN CABIN AUDIBLE IMPULSIVE NOISE LEVELS MAY CONSTITUTE A NECESSARY BUT CERTAINLY NOT SUFFICIENT TO INDICATE THAT FAR-FIELD IMPULSIVE NOISE RADIATION HAS BEEN REDUCED. THE FOLLOWING THREE DISTINCT TYPES OF IMPULSIVE NOISE ARE RADIATED BY THE UH-1H HELICOPTER WHILE FLYING BETWEEN 80 AND 115 KNOTS AT DESCENT RATES FROM ZERO TO 1000 FT/MIN: (A) A SERIES OF POSITIVE PRESSURE PULSES BELIEVED TO BE RELATED TO BLADE-TIP VORTEX INTERACTION. THESE PULSES ARE RESPONSIBLE FOR THE CRISP POPPING SOUND OF THE RADIATED NOISE; (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A025 982 20/1
ARMY AIR MOBILITY RESEARCH AND DEVELOPMENT LAB HAMPTON VA
LANGLEY DIRECTORATE

A NEW CAPABILITY FOR PREDICTING HELICOPTER
ROTOR NOISE IN HOVER AND IN FLIGHT, (U)

76 14P BROWN, THOMAS J. ;FARASSAT,
FEREIDOUN ;
CONTRACT: NGR-09-010-085

UNCLASSIFIED REPORT

DESCRIPTORS: *AIRCRAFT NOISE, *HELICOPTER ROTORS,
*PROPELLER NOISE, MATHEMATICAL PREDICTION,
RADIATED NOISE, COMPUTER PROGRAMS, HOVERING,
INFLIGHT, ROTOR BLADES(ROTARY WINGS),
AERODYNAMIC LOADING, HIGH VELOCITY, ACOUSTIC
SIGNATURES, SOUND PRESSURE, MATHEMATICAL MODELS (U)
IDENTIFIERS: BLADE TIPS (U)

THIS PAPER DISCUSSES A NEW THEORY AND A COMPUTER PROGRAM FOR REALISTIC CALCULATION OF ACOUSTIC PRESSURE SIGNATURE AND SPECTRUM OF ROTOR AND PROPELLER NOISE. MANY OF THE COMMON RESTRICTIONS OF ALREADY EXISTING THEORIES ARE REMOVED BY USING THE NEW THEORY WHICH IS CONSISTENT WITH ALL PREVIOUS THEORIES. ONLY DETERMINISTIC PRESSURE FLUCTUATIONS MAY BE USED IN THE PROGRAM AT THIS STAGE OF DEVELOPMENT. THIS WILL LIMIT THE APPLICABILITY OF THE PROGRAM TO RELATIVELY HIGH TIP SPEEDS WHERE IT IS KNOWN THAT HIGH FREQUENCY UNSTEADY PRESSURE FLUCTUATIONS DO NOT CONTRIBUTE SIGNIFICANTLY TO THE SOUND LEVEL. THERE ARE VERY FEW BLADE SURFACE PRESSURE MEASUREMENTS AND RELIABLE ACOUSTIC DATA AVAILABLE TO TEST THE THEORY IN FULL. COMPARISON WITH THE MEASURED ACOUSTIC DATA OF A HIGH-SPEED PROPELLER BY HUBBARD AND LASSITER, USING LIMITED AERODYNAMIC DATA IN THE BLADE TIP REGION FOR ACOUSTIC CALCULATIONS, HAS SHOWN GOOD AGREEMENT SO FAR. ONE IMPORTANT CONTRIBUTION OF THE NEW THEORY IS BELIEVED TO BE THE REMOVAL OF THE COMPACTNESS ASSUMPTION WHICH CAN INTRODUCE ERRORS IN ACOUSTIC COMPUTATIONS. THE NEW CAPABILITY WILL BE USED TO STUDY THIS EFFECT. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A026 209 1/5 20/1 13/2
BOLT BERANEK AND NEWMAN INC CANOGA PARK CALIF

TEST PLAN FOR AIRCRAFT RUNUP NOISE PENALTY EVALUATION. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
MAR 76 39P FIDELL,SANFORD ;
REPT. NO. BBN-2941
CONTRACT: F33615-75-C-5044
PROJ: AF-7231
TASK: 723104
MONITOR: AMRL TR-75-110

UNCLASSIFIED REPORT

DESCRIPTORS: *AIRCRAFT NOISE, *AIRPORTS, *NOISE POLLUTION, MILITARY FACILITIES, MILITARY AIRCRAFT, ATTITUDES(PSYCHOLOGY), SURVEYS, COMMUNITIES, COMMUNITY RELATIONS, THRESHOLDS(PHYSIOLOGY), QUESTIONNAIRES, AIRCRAFT MAINTENANCE, ACOUSTICS (U)
IDENTIFIERS: *AIRPORT PLANNING (U)

THIS REPORT OUTLINES A TEST PLAN FOR CONDUCTING A SOCIAL SURVEY TO DETERMINE WHETHER COMMUNITY RESPONSE TO NOISE FROM MILITARY AIRCRAFT OPERATIONS DIFFERS SIGNIFICANTLY BETWEEN NOISE FROM FLIGHT OPERATIONS AND NOISE FROM GROUND RUNUP (MAINTENANCE) OPERATIONS. THE REPORT INCLUDES DISCUSSION OF THE METHODOLOGY AND RATIONALE FOR THE SURVEY AS WELL AS SAMPLE TELEPHONE AND MAIL QUESTIONNAIRES.
(AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A026 535 20/1 13/2 1/3
BOLT BERANEK AND NEWMAN INC CANOGA PARK CALIF

SENSITIVITY STUDIES OF COMMUNITY-AIRCRAFT NOISE EXPOSURE (NOISEMAP) PREDICTION PROCEDURE, (U)

MAR 76 123P BISHOP,DWIGHT E. ; DUNDERDALE,TOM C. ;HORONJEFF,RICHARD D. ; MILLS,JOHN F. ;
REPT. NO. BBN-2956
CONTRACT: F33615-75-C-5044
PROJ: AF-7231
TASK: 723104
MONITOR: AMRL TR-75-115

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED AUG 75, AD-A017 741.

DESCRIPTORS: *AIRCRAFT NOISE, *COMMUNITY RELATIONS, NOISE POLLUTION, EXPOSURE(GENERAL), MODELS, MATHEMATICAL PREDICTION, COMPUTER APPLICATIONS, AIRPORTS, SENSITIVITY, LEVEL(QUANTITY), AIR FORCE RESEARCH, NOISE REDUCTION (U)
IDENTIFIERS: NOISEMAP, NOISE LEVELS, *NOISE EXPOSURE (U)

THIS REPORT DESCRIBES A PRELIMINARY STUDY OF THE SENSITIVITY OF NOISE EXPOSURE CONTOURS TO VARIOUS AIRCRAFT NOISE MODELING PARAMETERS AND ASSUMPTIONS. THE STUDY IS THE FIRST STEP IN A CONTINUING TECHNICAL ASSESSMENT OF THE AIR FORCE COMMUNITY-AIRCRAFT NOISE EXPOSURE (NOISEMAP) PREDICTION PROCEDURE. THE RESULTS INDICATE THAT THE ADDITION OF A TONE CORRECTION TO THE NOISE MEASURE CAN RESULT IN APPRECIABLE INCREASE IN NOISE EXPOSURE AREAS, BUT THE INCREASE IS HIGHLY DEPENDENT ON THE TYPE OF AIRCRAFT OPERATIONS. COMPUTATION OF CONTOUR AREAS FOR NINE BASES WITH AND WITHOUT THE GROUND RUNUP PENALTY SHOWED HOW THE PERCENT OF AREA IMPACTED INCREASED WITH INCREASING NOISE EXPOSURE LEVEL. USE OF ALTERNATE ALGORITHMS FOR GROUND-TO-GROUND PROPAGATION AND TRANSITIONS FOR AIR-TO-GROUND AND GROUND-TO-GROUND SITUATIONS IS DISCUSSED. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A027 363 1/3 20/1 9/2
UNITED TECHNOLOGIES CORP WINDSOR LOCKS CONN HAMILTON STANDARD DIV

V/STOL ROTARY PROPULSION SYSTEMS - NOISE PREDICTION AND REDUCTION. VOLUME III. COMPUTER PROGRAM USER'S MANUAL. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
MAY 76 300P MAGLIOZZI,B. ;
CONTRACT: DOT-FA74WA-3477
MONITOR: FAA-RD 76-49-VOL-3

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 1, AD-A027 389.

DESCRIPTORS: *VERTICAL TAKEOFF AIRCRAFT, *SHORT TAKEOFF AIRCRAFT, *PROPULSION SYSTEM COMPONENTS, *AIRCRAFT NOISE, *COMPUTER PROGRAMS, USER NEEDS, INSTRUCTION MANUALS, PREDICTIONS, AIRCRAFT ENGINE NOISE, PROPELLER NOISE, LIFT FANS, JET ENGINE NOISE, NOISE REDUCTION, NOISE POLLUTION, HELICOPTERS (U)

A COMPUTER PROGRAM IS PRESENTED WHICH ALLOWS A USER TO MAKE PERFORMANCE AND FAR-FIELD ACOUSTIC NOISE PREDICTIONS FOR FREE-AIR PROPELLERS, VARIABLE PITCH FANS WITH INLET GUIDE VANES, VARIABLE PITCH FANS WITH OUTLET GUIDE VANES, FIXED PITCH FANS, HELICOPTER ROTORS, TILT ROTORS, FIXED PITCH LIFT VANES WITH REMOTE, INTEGRAL, AND TIP-TURBINE DRIVES, AND VARIABLES PITCH LIFT FANS WITH REMOTE AND INTEGRAL DRIVES. NOISE PREDICTION METHODOLOGY FOR DRIVE ENGINES, SINGLE STREAM AND COAXIAL JETS, AND GEARBOXES ARE ALSO INCLUDED, AS WELL AS NOISE REDUCTION AND PERFORMANCE LOSSES OF PARTLY SONIC INLETS AND DUCT ACOUSTIC TREATMENT. A DESCRIPTION OF THE PROGRAM, DETAILED INSTRUCTIONS FOR ITS USE, REQUIRED INPUTS, AND SAMPLE CASES ARE PRESENTED. RELATED DOCUMENTS INCLUDE VOLUME 1 - IDENTIFICATION OF SOURCES, NOISE GENERATING MECHANISMS, NOISE REDUCTION MECHANISMS, AND PREDICTION METHODOLOGY AND VOLUME 2 - GRAPHICAL PREDICTION METHODS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A027 389 1/3 20/1
UNITED TECHNOLOGIES CORP WINDSOR LOCKS CONN HAMILTON STANDARD DIV

V/STOL ROTARY PROPULSION SYSTEMS NOISE PREDICTION AND REDUCTION. VOLUME I. IDENTIFICATION OF SOURCES, NOISE GENERATING MECHANISMS, NOISE REDUCTION MECHANISMS, AND PREDICTION METHODOLOGY. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
MAY 76 145P MAGLIOZZI,B. ;
CONTRACT: DOT-FA74WA-3477
MONITOR: FAA-RD 76-49.1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-A027 390.

DESCRIPTORS: *VERTICAL TAKEOFF AIRCRAFT, *SHORT TAKEOFF AIRCRAFT, *PROPULSION SYSTEM COMPONENTS, *AIRCRAFT NOISE, AIRCRAFT ENGINE NOISE, PROPELLER NOISE, LIFT FANS, NOISE GENERATORS, JET ENGINE NOISE, NOISE REDUCTION, NOISE POLLUTION (U)

THE PROPULSION SYSTEMS OF CURRENT AND FUTURE V/STOL VEHICLES CAN BE DEFINED AS COMBINATIONS OF FREE-AIR PROPELLERS, SHROUDED PROPELLERS, VARIABLE PITCH FANS, FIXED PITCH FANS, TILT ROTORS, HELICOPTER ROTORS, LIFT FANS, GEARBOXES, AND DRIVE ENGINES. IN THIS REPORT, NOISE SOURCES FOR EACH OF THESE PROPULSORS, GEARBOXES, AND DRIVE ENGINES ARE IDENTIFIED AND RANK ORDERED. THE NOISE GENERATING MECHANISMS FOR EACH OF THE PROPULSOR NOISE SOURCES IDENTIFIED ARE DEFINED AND SYSTEMATICALLY CATALOGUED. THREE APPROACHES TO REDUCTION OF PROPULSOR NOISE ARE DISCUSSED: CHANGES IN PHYSICAL GEOMETRY, CHANGES IN DESIGN OPERATING CONDITIONS, AND THE USE OF ACOUSTIC TREATMENTS. COMPUTERIZED AND GRAPHICAL PROCEDURES BASED ON METHODOLOGY FROM THE OPEN LITERATURE AND AT UNITED TECHNOLOGIES CORP., ARE PRESENTED FOR PREDICTING AERODYNAMIC PERFORMANCE OF AND NOISE FROM THE V/STOL PROPULSORS IDENTIFIED IN THIS STUDY. THE DEVELOPED METHODOLOGY ALLOWS THE USER TO ESTIMATE THE ACHIEVED NOISE REDUCTION AS WELL AS THE INCURRED PERFORMANCE PENALTIES OF NOISE REDUCTION DESIGN FEATURES AND NOISE ATTENUATION DEVICES SUCH AS PARTLY SONIC INLETS AND ACOUSTIC TREATMENT. IT IS SHOWN THAT MUCH OF THE NOISE GENERATING MECHANISM SUBSTANTIATION DATA AND PREDICTION METHODOLOGY ARE BASED ON STATIC (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A027 390 1/3 20/1
UNITED TECHNOLOGIES CORP WINDSOR LOCKS CONN HAMILTON STANDARD DIV

V/STOL ROTARY PROPULSION SYSTEMS NOISE PREDICTION AND REDUCTION. VOLUME II. GRAPHICAL PREDICTION METHODS. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
MAY 76 299P MAGLIOZZI,B. ;
CONTRACT: DOT-FA74WA-3477
MONITOR: FAA-RD 76-49.2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 1, AD-A027 389.

DESCRIPTORS: *VERTICAL TAKEOFF AIRCRAFT, *SHORT TAKEOFF AIRCRAFT, *PROPULSION SYSTEM COMPONENTS, *AIRCRAFT NOISE, AIRCRAFT ENGINE NOISE, PROPELLER NOISE, LIFT FANS, NOISE GENERATORS, JET ENGINE NOISE, NOISE REDUCTION, NOISE POLLUTION, PREDICTIONS (U)
IDENTIFIERS: *GRAPHIC METHODS (U)

GRAPHICAL PROCEDURES FOR ESTIMATING NOISE AND PERFORMANCE OF FREE-AIR PROPELLERS, VARIABLE PITCH FANS WITH INLET GUIDE VANES, VARIABLE PITCH FANS WITH OUTLET GUIDE VANES, FIXED PITCH FANS, HELICOPTER ROTORS, TILT ROTORS, AND LIFT FANS ARE PRESENTED. NOISE PREDICTION METHODS FOR DRIVE ENGINES, GEARBOXES, JETS WITH AND WITHOUT BYPASS FLOW, AS WELL AS NOISE REDUCTION AND PERFORMANCE LOSSES FOR PARTLY SONIC INLETS AND DUCT LININGS ARE ALSO PRESENTED. THESE GRAPHICAL METHODS ARE PARALLEL TO THOSE DEVELOPED FOR THE COMPUTER PROGRAM DISCUSSED IN VOLUME 3 OF THIS REPORT TO THE EXTENT POSSIBLE WITHOUT THEIR BECOMING TOO INVOLVED AND TEDIOUS TO USE. THE PROCEDURES ARE EXTENSIVE AND APPLICABLE TO A WIDE VARIETY OF V/STOL PROPULSOR SYSTEMS, INCLUDING PRESENT AND FUTURE V/STOL VEHICLES. THE METHODS HAVE BEEN VALIDATED WITH AVAILABLE DATA WHEREVER POSSIBLE. HOWEVER, HIGH QUALITY DATA FOR ISOLATED PROPULSORS WHICH IS FREE FROM CONTAMINATION BY OTHER SOURCES AND GROUND REFLECTIONS IS SOMEWHAT LIMITED, PARTICULARLY FOR FORWARD FLIGHT CONDITIONS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A027 638 20/1 21/7 1/3
AIR FORCE FLIGHT DYNAMICS LAB WRIGHT-PATTERSON AFB OHIO

MINI RPV ENGINE NOISE REDUCTION. (U)

DESCRIPTIVE NOTE: FINAL REPT. MAY 74-AUG 75, MAR 76 97P SHIMOVETZ,RALPH M. ;SMITH, DAVEY L. ;
REPT. NO. AFFDL-TR-76-28
CONTRACT: ARPA ORDER-2707
PROJ: AF-2707
TASK: 270750

UNCLASSIFIED REPORT

DESCRIPTORS: *REMOTELY PILOTED VEHICLES, *ROTARY COMBUSTION ENGINES, *RECIPROCATING ENGINES, *AIRCRAFT ENGINE NOISE, DETECTION, NOISE REDUCTION, HEARING (U)
IDENTIFIERS: MINI-REMOTELY PILOTED VEHICLES, PRAEIRE AIRCRAFT, CALERE AIRCRAFT (U)

THE PURPOSE OF THIS EFFORT WAS TO INVESTIGATE THE REDUCTION IN RADIATED ACOUSTIC NOISE ASSOCIATED WITH TWO TYPES OF ENGINES CONSIDERED FOR POWER PLANTS IN SMALL (75-100 LB.) REMOTELY PILOTED VEHICLES (MINI RPV) IN THE CLASS OF THE PRAEIRE AND CALERE AIRCRAFT. THE TWO ENGINES CONSIDERED ARE APPROXIMATELY 5 HP; THE FIRST A ROTARY COMBUSTION (RC), THE SECOND A TWO STROKE CYCLE RECIPROCATING (P). THE SOUND PRESSURE LEVELS WERE RECORDED USING A SEMICIRCLE ARRANGEMENT OF MICROPHONES IN A FREE FIELD AND WITH VARIOUS ENGINE NOISE REDUCTION DEVICES INSTALLED. THE ENGINES WERE ROTATED SUCH THAT A SPHERICAL DEFINITION OF THE ACOUSTIC PRESSURES WERE MADE. FROM THESE DATA THE SOUND POWER LEVELS AND DIRECTIONAL CHARACTERISTICS WERE DETERMINED. AURAL DETECTION ANALYSES ARE PERFORMED FOR THE MOST DESIRABLE NOISE REDUCTION CASES. THE COMPUTED AURAL DETECTION ALTITUDES AND THE MOST SIGNIFICANT SOURCES OF NOISE WERE DEFINED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A028 511 1/5 13/2
TRACOR SCIENCES AND SYSTEMS AUSTIN TEX

AIRPORT NOISE MONITORING SYSTEMS. (U)

DESCRIPTIVE NOTE: FINAL REPT. JUL 74-NOV 75 ON TASK A,
NOV 75 279P COOPER,B. K. ;EDMISTON, RICHARD D. ;
REPT. NO. TRACOR-T75-AU-9531-U
CONTRACT: DOT-FA74WA-3539
MONITOR: FAA-RD 75-216

UNCLASSIFIED REPORT

DESCRIPTORS: *AIRPORTS, *AIRCRAFT NOISE, *ACOUSTIC MEASUREMENT, ACOUSTIC EMISSIONS, ACOUSTIC RECORDING SYSTEMS, REMOTE SYSTEMS, DATA PROCESSING, NOISE POLLUTION, NOISE REDUCTION, COMMERCIAL AVIATION (U)

THE PURPOSE OF THIS STUDY WAS TO SELECT AND EVALUATE THE TEN MOST COMPREHENSIVE AIRCRAFT NOISE MEASUREMENT SYSTEMS IN THE FREE WORLD. FIVE U.S. AND FIVE EUROPEAN SYSTEMS WERE VISITED AND STUDIED. THESE WERE INSTALLED BY VARIOUS SUPPLIERS IN THE PERIOD 1970-1975. FOR EACH SYSTEM, THIS REPORT PRESENTS A DESCRIPTION OF REMOTE MONITOR STATION EQUIPMENT, CENTRAL STATION EQUIPMENT, DATA PROCESSING AND OUTPUT, STAFFING AND COSTS FOR INSTALLATION AND OPERATION, AND ASSOCIATED NOISE ABATEMENT PROGRAM. THERE IS A WIDE DIVERSITY IN UTILIZATION OF SYSTEMS HAVING THE SAME BASIC HARDWARE. ALSO PRESENTED ARE COMPARATIVE EVALUATIONS OF THE SYSTEMS AND ASSOCIATED EQUIPMENT AND DISCUSSIONS OF THE APPLICATION OF MONITORING SYSTEMS TO AIRPORT NOISE ABATEMENT. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A028 765 20/1 1/3
LOCKHEED-GEORGIA CO MARIETTA

V/STOL AIRCRAFT NOISE PREDICTION (JET PROPULSORS). (U)

DESCRIPTIVE NOTE: FINAL REPT. JUN 74-JUN 75, JUN 75 327P REDDY,N. N. ;BLAKNEY,D. F. ;TIBBETS,J. G. ;GIBSON,J. S. ;
REPT. NO. LG75ER0054
CONTRACT: DOT-FA72WA-3099
MONITOR: FAA-RD 75-125

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SUPERSEDES REPORT DATED AUG 73, AD-774 794.

DESCRIPTORS: *JET PLANE NOISE, *SHORT TAKEOFF AIRCRAFT, *NOISE REDUCTION, THRUST VECTOR CONTROL SYSTEMS, AERODYNAMIC CONTROL SURFACES, MATHEMATICAL PREDICTION, COMPUTER PROGRAMS, AERODYNAMIC NOISE, JET ENGINE NOISE, HIGH LIFT (U)
IDENTIFIERS: *BLOWN FLAPS, *AUGMENTOR WINGS (U)

A COMPUTER PROGRAM IS PRESENTED FOR PREDICTING THE NOISE LEVELS OF V/STOL AIRCRAFT WITH JET-PROPULSIVE-LIFT SYSTEMS. USING THE EQUATIONS DEVELOPED IN PART I OF THIS REPORT THE NOISE LEVELS MAY ALSO BE ESTIMATED WITH HAND CALCULATIONS. VECTORED THRUST, EXTERNALLY BLOWN FLAP, UPPER SURFACE BLOWN FLAP, INTERNALLY BLOWN FLAP, AND AUGMENTOR WING ARE THE PROPULSIVE-LIFT CONCEPTS CONSIDERED. SEMI-EMPIRICAL EQUATIONS ARE DERIVED USING THE TEST RESULTS AND THEORIES FOR THE FOLLOWING AIRCRAFT NOISE SOURCES: INTERNAL ENGINE, JET, EXCESS (CORE ENGINE), HIGH-LIFT SYSTEM, AIRFRAME, AND AUXILIARY POWER UNIT. THE COMPUTER PROGRAM PREDICTS THE PERCEIVED NOISE LEVELS AND TONE CORRECTED PERCEIVED NOISE LEVELS FOR V/STOL AIRCRAFT AT ANY SPECIFIED SIDELINE DISTANCE FOR KNOWN GEOMETRICAL AND OPERATIONAL PARAMETERS. THIS REPORT SUPERSEDES THE EARLIER REPORT NO. FAA-RD-73-145, AUGUST 1973. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A029 575 20/1 21/5
TEXAS UNIV AT AUSTIN APPLIED RESEARCH LABS

NONLINEAR PROPAGATION DISTORTION OF JET NOISE. (U)

DESCRIPTIVE NOTE: INTERIM REPT.,
NOV 75 12P BLACKSTOCK,DAVID T. ;
CONTRACT: F44620-71-C-0015
PROJ: AF-9781
TASK: 978102
MONITOR: AFOSR TR-76-0976

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PUB. IN PROCEEDINGS OF INTERAGENCY SYMPOSIUM ON UNIVERSITY RESEARCH IN TRANSPORTATION NOISE (3RD), SALT LAKE CITY, UTAH, 12-14 NOV 75 P1-9 N.D. SPONSORED IN PART BY DEPARTMENT OF TRANSPORTATION, WASHINGTON, D.C.

DESCRIPTORS: *JET ENGINE NOISE, *ACOUSTIC FIELDS, DISTORTION, SOUND TRANSMISSION, PLANE WAVES, SPECTRUM ANALYSIS, NOISE POLLUTION, NONLINEAR SYSTEMS, SPECTRUM SIGNATURES (U)
IDENTIFIERS: *JET NOISE, NONLINEAR ACOUSTICS (U)

A PREVIOUS THEORETICAL AND EXPERIMENTAL STUDY OF INTENSE BROADBAND NOISE IN A TUBE SHOWED THAT PROPAGATION DISTORTION IS SIGNIFICANT FOR PLANE WAVES AT SOUND PRESSURE LEVELS ENCOUNTERED IN JET NOISE FIELDS. A COMPUTER PROGRAM WAS LATER MODIFIED TO ACCOUNT FOR SPHERICAL SPREADING. IN THE STUDY REPORTED HERE, MEASURED NOISE NEAR ACTUAL JETS WAS USED AS THE INPUT FOR THE PROGRAM. THE DISTORTION THAT IS EXPECTED TO OCCUR DURING SUBSEQUENT PROPAGATION WAS COMPUTED. COMPUTATIONS WERE MADE FOR NOISE FROM A MODEL SUPERSONIC JET AND FROM A T38 AIRCRAFT. IN BOTH CASES THE COMPUTED WAVEFORMS EXHIBIT SHOCKS AND OTHER EVIDENCE OF NONLINEAR EFFECTS AT MODERATE DISTANCES. HOWEVER, THE MODEL DOES NOT INCLUDE ATMOSPHERIC ATTENUATION AND METEOROLOGICAL EFFECTS, GROUND REFLECTION AND ABSORPTION, AND EFFECTS DUE TO THE COMPLICATED NATURE OF THE JET SOURCE ITSELF. AN OUTDOOR PROPAGATION EXPERIMENT USING NOISE FROM A CONVENTIONAL SOUND SOURCE IS PLANNED FOR THE FUTURE. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A029 605 13/2 20/1
AEROSPACE MEDICAL RESEARCH LAB WRIGHT-PATTERSON AFB OHIO

USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 31. B-52H IN-FLIGHT CREW NOISE. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT., SEP 75 16P FARINACCI,NICK A. ;COLE, JOHN N. ;MOHLMAN,HENRY ;EILERMAN,DAVID ;
REPT. NO. AMRL-TR-75-50-VOL-31
PROJ: AF-7231
TASK: 723104

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 32, AD-A029 606.

DESCRIPTORS: *NOISE POLLUTION, *BIOACOUSTICS, *AIRCRAFT NOISE, FLIGHT CREWS, INFLIGHT, NOISE(SOUND), BOMBER AIRCRAFT, SOUND PRESSURE, INTERFERENCE, EXPOSURE(PHYSIOLOGY), EAR PROTECTORS, VOICE COMMUNICATIONS (U)
IDENTIFIERS: *BIOENVIRONMENTAL NOISE, B-52 AIRCRAFT, B-52H AIRCRAFT (U)

THE B-52H IS A USAF STRATEGIC HEAVY BOMBER AIRCRAFT. THIS REPORT PROVIDES MEASURED DATA DEFINING THE BIOACOUSTIC ENVIRONMENTS AT FLIGHT CREW/PASSENGER LOCATIONS INSIDE THIS AIRCRAFT DURING NORMAL FLIGHT OPERATIONS. DATA ARE REPORTED FOR 9 LOCATIONS IN A WIDE VARIETY OF PHYSICAL AND PSYCHOACOUSTIC MEASURES: OVERALL AND BAND SOUND PRESSURE LEVELS, C-WEIGHTED AND A-WEIGHTED SOUND LEVELS, PREFERRED SPEECH INTERFERENCE LEVEL, PERCEIVED NOISE LEVEL, AND LIMITING TIMES FOR TOTAL DAILY EXPOSURE OF PERSONNEL WITH AND WITHOUT STANDARD AIR FORCE EAR PROTECTORS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A029 606 13/2 20/1
AEROSPACE MEDICAL RESEARCH LAB WRIGHT-PATTERSON AFB OHIO

USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 32. KC-135A IN-FLIGHT CREW NOISE. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT., SEP 75 25P FARINACCI,NICK A. ;COLE, JOHN N. ;MOHLMAN,HENRY ;EILERMAN,DAVID ;
REPT. NO. AMRL-TR-75-50-VOL-32
PROJ: AF-7231
TASK: 723104

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 33, AD-A029 607.

DESCRIPTORS: *NOISE POLLUTION, *BIOACOUSTICS, *AIRCRAFT NOISE, FLIGHT CREWS, INFLIGHT, NOISE(SOUND), SOUND PRESSURE, INTERFERENCE, EXPOSURE(PHYSIOLOGY), EAR PROTECTORS, VOICE COMMUNICATIONS, TRANSPORT AIRCRAFT, TANKER PLANES (U)
IDENTIFIERS: *BIOENVIRONMENTAL NOISE, KC-135 AIRCRAFT, C-135 AIRCRAFT (U)

THE KC-135A IS THE STANDARD USAF TANKER-TRANSPORT AIRCRAFT WITH HIGH-SPEED HIGH-ALTITUDE REFUELING AND LONG-RANGE TRANSPORT CAPABILITY. THIS REPORT PROVIDES MEASURED DATA DEFINING THE BIOACOUSTIC ENVIRONMENTS AT FLIGHT CREW/PASSENGER LOCATIONS INSIDE THIS AIRCRAFT DURING NORMAL FLIGHT OPERATIONS. DATA ARE REPORTED FOR 15 LOCATIONS IN A WIDE VARIETY OF PHYSICAL AND PSYCHOACOUSTIC MEASURES: OVERALL AND BAND SOUND PRESSURE LEVELS, C-WEIGHTED AND A-WEIGHTED SOUND LEVELS, PREFERRED SPEECH INTERFERENCE LEVEL, PERCEIVED NOISE LEVEL, AND LIMITING TIMES FOR TOTAL DAILY EXPOSURE OF PERSONNEL WITH AND WITHOUT STANDARD AIR FORCE EAR PROTECTORS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A029 607 13/2 20/1
AEROSPACE MEDICAL RESEARCH LAB WRIGHT-PATTERSON AFB OHIO

USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 33. C-131B IN-FLIGHT CREW NOISE. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT., SEP 75 13P FARINACCI,NICK A. ;COLE, JOHN N. ;MOHLMAN,HENRY ;EILERMAN,DAVID ;
REPT. NO. AMRL-TR-50-VOL-33
PROJ: AF-7231
TASK: 723104

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 34, AD-A029 608.

DESCRIPTORS: *NOISE POLLUTION, *BIOACOUSTICS, *AIRCRAFT NOISE, FLIGHT CREWS, INFLIGHT, NOISE(SOUND), SOUND PRESSURE, INTERFERENCE, EXPOSURE(PHYSIOLOGY), EAR PROTECTORS, VOICE COMMUNICATIONS, TRANSPORT AIRCRAFT, PASSENGER AIRCRAFT (U)
IDENTIFIERS: *BIOENVIRONMENTAL NOISE, C-131 AIRCRAFT, C-131B AIRCRAFT (U)

THE C-131B IS A USAF TRANSREPORT/PASSENGER AIRCRAFT WHICH CAN BE USED AS A FLYING LABORATORY. THIS REPORT PROVIDES MEASURED DATA DEFINING THE BIOACOUSTIC ENVIRONMENTS AT FLIGHT CREW/PASSENGER LOCATIONS INSIDE THIS AIRCRAFT DURING NORMAL FLIGHT OPERATIONS. DATA ARE REPORTED FOR 9 LOCATIONS IN A WIDE VARIETY OF PHYSICAL AND PSYCHOACOUSTIC MEASURES: OVERALL, AND BAND SOUND PRESSURE LEVELS, C-WEIGHTED AND A-WEIGHTED SOUND LEVELS, PREFERRED SPEECH INTERFERENCE LEVEL, PERCEIVED NOISE LEVEL, AND LIMITING TIMES FOR TOTAL EXPOSURE OF PERSONNEL WITH AND WITHOUT STANDARD AIR FORCE EAR PROTECTORS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A029 608 13/2 20/1
AEROSPACE MEDICAL RESEARCH LAB WRIGHT-PATTERSON AFB OHIO

USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 34. VC-118A IN-FLIGHT CREW/ PASSENGER NOISE. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT., SEP 75 22P FARINACCI,NICK A. ;COLE, JOHN N. ;MOHLMAN,HENRY ;EILERMAN,DAVID ;
REPT. NO. AMRL-TR-75-50-VOL-34
PROJ: AF-7231
TASK: 723104

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 34, AD-A029 609.

DESCRIPTORS: *NOISE POLLUTION, *BIOACOUSTICS, *AIRCRAFT NOISE, FLIGHT CREWS, NOISE(SOUND), INFLIGHT, SOUND PRESSURE, INTERFERENCE, EXPOSURE(PHYSIOLOGY), EAR PROTECTORS, VOICE COMMUNICATIONS, PASSENGER AIRCRAFT, TRANSPORT AIRCRAFT, PASSENGERS (U)
IDENTIFIERS: *BIOENVIRONMENTAL NOISE, VC-118A AIRCRAFT, VC-118 AIRCRAFT (U)

THE VC-118A IS A USAF PASSENGER AIRCRAFT WITH CARGO TRANSPORT CAPABILITY. THIS REPORT PROVIDES MEASURED DATA DEFINING THE BIOACOUSTIC ENVIRONMENTS AT FLIGHT CREW/PASSENGER LOCATIONS INSIDE THIS AIRCRAFT DURING NORMAL FLIGHT OPERATIONS. DATA ARE REPORTED FOR 24 LOCATIONS IN A WIDE VARIETY OF PHYSICAL AND PSYCHOACOUSTIC MEASURES: OVERALL AND BAND SOUND PRESSURE LEVELS, C-WEIGHTED AND A-WEIGHTED SOUND LEVELS, PREFERRED SPEECH INTERFERENCE LEVEL, PERCEIVED NOISE LEVEL, AND LIMITING TIMES FOR TOTAL DAILY EXPOSURE OF PERSONNEL WITH AND WITHOUT STANDARD AIR FORCE EAR PROTECTORS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A029 609 13/2 20/1
AEROSPACE MEDICAL RESEARCH LAB WRIGHT-PATTERSON AFB OHIO

USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 35. T-39B IN-FLIGHT CREW/ PASSENGER NOISE. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT., SEP 75 15P FARINACCI,NICK A. ;COLE, JOHN N. ;MOHLMAN,HENRY ;EILERMAN,DAVID ;
REPT. NO. AMRL-TR-75-50-VOL-35
PROJ: AF-7231
TASK: 723104

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 37, AD-A029 610.

DESCRIPTORS: *NOISE POLLUTION, *BIOACOUSTICS, *AIRCRAFT NOISE, INFLIGHT, FLIGHT CREWS, PASSENGERS, SOUND PRESSURE, NOISE(SOUND), INTERFERENCE, EXPOSURE(PHYSIOLOGY), EAR PROTECTORS, VOICE COMMUNICATIONS, UTILITY AIRCRAFT, TRAINING PLANES (U)
IDENTIFIERS: *BIOENVIRONMENTAL NOISE, T-39 AIRCRAFT, T-39B AIRCRAFT (U)

THE T-39B IS A USAF COMBAT READINESS TRAINER AND UTILITY AIRCRAFT. THIS REPORT PROVIDES MEASURED DATA DEFINING THE BIOACOUSTIC ENVIRONMENTS AT FLIGHT CREW/PASSENGER LOCATIONS INSIDE THIS AIRCRAFT DURING NORMAL FLIGHT OPERATIONS. DATA ARE REPORTED FOR 4 LOCATIONS IN A WIDE VARIETY OF PHYSICAL AND PSYCHOACOUSTIC MEASURES: OVERALL AND BAND SOUND PRESSURE LEVELS, C-WEIGHTED AND A-WEIGHTED SOUND LEVELS, PREFERRED SPEECH INTERFERENCE LEVEL, PERCEIVED NOISE LEVEL, AND LIMITING TIMES FOR TOTAL DAILY EXPOSURE OF PERSONNEL WITH AND WITHOUT STANDARD AIR FORCE EAR PROTECTORS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A029 610 13/2 20/1
AEROSPACE MEDICAL RESEARCH LAB WRIGHT-PATTERSON AFB OHIO

USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 37. F-4D IN-FLIGHT CREW NOISE. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT., SEP 75 15P ROSE,JUSTUS F. , JR.; FARINACCI,NICK A. ;COLE,JOHN N. ;MOHLMAN, HENRY ;EILERMAN,DAVID F. ;
REPT. NO. AMRL-TR-75-50-VOL-37
PROJ: AF-7231
TASK: 723104

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 38, AD-A029 611.

DESCRIPTORS: *NOISE POLLUTION, *BIOACOUSTICS, *AIRCRAFT NOISE, FLIGHT CREWS, INFLIGHT, NOISE(SOUND), VOICE COMMUNICATIONS, FIGHTER BOMBERS, SOUND PRESSURE, INTERFERENCE, EXPOSURE(PHYSIOLOGY), EAR PROTECTORS (U)
IDENTIFIERS: *BIOENVIRONMENTAL NOISE, F-4 AIRCRAFT, F-4D AIRCRAFT (U)

THE F-4D IS A USAF LONG-RANGE, ALL-WEATHER ATTACK FIGHTER-BOMBER AIRCRAFT. THIS REPORT PROVIDES MEASURED DATA DEFINING THE BIOACOUSTIC ENVIRONMENTS AT FLIGHT CREW LOCATIONS INSIDE THIS AIRCRAFT DURING NORMAL FLIGHT OPERATIONS. DATA ARE REPORTED 1 LOCATION IN A WIDE VARIETY OF PHYSICAL AND PSYCHOACOUSTIC MEASURES: OVERALL AND BAND SOUND PRESSURE LEVELS, C-WEIGHTED AND A-WEIGHTED SOUND LEVELS, PREFERRED SPEECH INTERFERENCE LEVEL, PERCEIVED NOISE LEVEL, AND LIMITING TIMES FOR TOTAL DAILY EXPOSURE OF PERSONNEL WITH AND WITHOUT STANDARD AIR FORCE EAR PROTECTORS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A029 613 13/2 20/1
AEROSPACE MEDICAL RESEARCH LAB WRIGHT-PATTERSON AFB OHIO

USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 42. EC-135H IN-FLIGHT CREW NOISE. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT., OCT 75 28P FARINACCI,NICK A. ;COLE, JOHN N. ;MOHLMAN,HENRY ;EILERMAN,DAVID ;
REPT. NO. AMRL-TR-75-50-VOL-42
PROJ: AF-7231
TASK: 723104

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 45, AD-A029 614.

DESCRIPTORS: *NOISE POLLUTION, *BIOACOUSTICS, *AIRCRAFT NOISE, INFLIGHT, FLIGHT CREWS, INTERFERENCE, SPEECH TRANSMISSION, SOUND PRESSURE, EAR PROTECTORS, EXPOSURE(PHYSIOLOGY), RECONNAISSANCE AIRCRAFT (U)
IDENTIFIERS: *BIOENVIRONMENTAL NOISE, EC-135 AIRCRAFT, EC-135H AIRCRAFT, ELECTRONIC AIRCRAFT (U)

THE EC-135H IS A MODIFIED KC-135A AIRCRAFT EQUIPPED AS AN AIRBORNE COMMAND POST FOR USE BY HQ USAF (NIGHT WATCH). THIS REPORT PROVIDES MEASURED DATA DEFINING THE BIOACOUSTIC ENVIRONMENTS AT FLIGHT CREW/PASSENGER LOCATIONS INSIDE THIS AIRCRAFT DURING NORMAL FLIGHT OPERATIONS. DATA ARE REPORTED FOR 36 LOCATIONS IN A WIDE VARIETY OF PHYSICAL AND PSYCHOACOUSTIC MEASURES: OVERALL AND BAND SOUND PRESSURE LEVELS, C-WEIGHTED AND A-WEIGHTED SOUND LEVELS, PREFERRED SPEECH INTERFERENCE LEVEL, PERCEIVED NOISE LEVEL, AND LIMITING TIMES FOR TOTAL DAILY EXPOSURE OF PERSONNEL WITH AND WITHOUT STANDARD AIR FORCE EAR PROTECTORS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A029 614 13/2 20/1
AEROSPACE MEDICAL RESEARCH LAB WRIGHT-PATTERSON AFB OHIO

USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 45. F-111E IN-FLIGHT CREW NOISE. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
OCT 75 15P ROSE,JUSTUS F. , JR. ;
FARINACCI,NICK A. ;COLE,JOHN N. ;MOHLMAN, HENRY ;EILERMAN,DAVID ;
REPT. NO. AMRL-TR-75-50-VOL-45
PROJ: AF-7231
TASK: 723104

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 46, AD-A029 615.

DESCRIPTORS: *NOISE POLLUTION, *BIOACOUSTICS, *AIRCRAFT NOISE, INFLIGHT, FLIGHT CREWS, SOUND PRESSURE, SPEECH TRANSMISSION, INTERFERENCE, EAR PROTECTORS, EXPOSURE(PHYSIOLOGY), SUPERSONIC AIRCRAFT, FIGHTER BOMBERS, TACTICAL AIRCRAFT (U)
IDENTIFIERS: *BIOENVIRONMENTAL NOISE, F-111 AIRCRAFT, F-111E AIRCRAFT (U)

THE F-111E IS A USAF TWO-SEAT, ALL-WEATHER SUPERSONIC TACTICAL FIGHTER-BOMBER WITH AN AUTOMATIC LOW-ALTITUDE TERRAIN FOLLOWING CAPABILITY. THIS REPORT PROVIDES MEASURED DATA DEFINING THE BIOACOUSTIC ENVIRONMENTS AT FLIGHT CREW LOCATIONS INSIDE THIS AIRCRAFT DURING NORMAL FLIGHT OPERATIONS. DATA ARE REPORTED FOR ONE LOCATION IN A WIDE VARIETY OF PHYSICAL AND PSYCHOACOUSTIC MEASURES: OVERALL AND BAND SOUND PRESSURE LEVELS, C-WEIGHTED AND A-WEIGHTED SOUND LEVELS, PREFERRED SPEECH INTERFERENCE LEVEL, PERCEIVED NOISE LEVEL, AND LIMITING TIMES FOR TOTAL DAILY EXPOSURE OF PERSONNEL WITH AND WITHOUT STANDARD AIR FORCE EAR PROTECTORS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A029 615 13/2 20/1
AEROSPACE MEDICAL RESEARCH LAB WRIGHT-PATTERSON AFB OHIO

USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 46. O-2A IN-FLIGHT CREW NOISE. (U)

OCT 75 12P ROSE,JUSTUS F. , JR.; FARINACCI,NICK A. ;COLE,JOHN N. ;MOHLMAN, HENRY ;EILERMAN,DAVID ;
REPT. NO. AMRL-TR-75-50-VOL-46
PROJ: AF-7231
TASK: 723104

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 47, AD-A029 616.

DESCRIPTORS: *NOISE POLLUTION, *BIOACOUSTICS, *AIRCRAFT NOISE, INFLIGHT, FLIGHT CREWS, INTERFERENCE, SPEECH TRANSMISSION, SOUND PRESSURE, EAR PROTECTORS, EXPOSURE(PHYSIOLOGY), OBSERVATION AIRCRAFT, UTILITY AIRCRAFT (U)
IDENTIFIERS: *BIOENVIRONMENTAL NOISE, O-2 AIRECRAFT, O-2A AIRCRAFT (U)

THE O-2A IS A USAF FORWARD AIR-CONTROL AIRCRAFT WITH ADDITIONAL CAPABILITY FOR LIGHT CARGO AND ADMINISTRATIVE TRANSPORT TYPE MISSIONS. THIS REPORT PROVIDES MEASURED DATA DEFINING THE BIOACOUSTIC ENVIRONMENTS AT FLIGHT CREW LOCATIONS INSIDE THIS AIRCRAFT DURING NORMAL FLIGHT OPERATIONS, DATA ARE REPORTED FOR ONE LOCATION IN A WIDE VARIETY OF PHYSICAL AND PSYCHOACOUSTIC MEASURES: OVERALL AND BAND SOUND PRESSURE LEVELS, C-WEIGHTED AND A-WEIGHTED SOUND LEVELS, PREFERRED SPEECH INTERFERENCE LEVEL, PERCEIVED NOISE LEVEL, AND LIMITING TIMES FOR TOTAL DAILY EXPOSURE OF PERSONNEL WITH AND WITHOUT STANDARD AIR FORCE EAR PROTECTORS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A029 616 13/2 20/1
AEROSPACE MEDICAL RESEARCH LAB WRIGHT-PATTERSON AFB OHIO

USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 47. O-2B IN-FLIGHT CREW NOISE. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
OCT 75 15P ROSE,JUSTUS F. , JR.;
MOHLMAN,HENRY ;FARINACCI,NICK A. ;EILERMAN, DAVID ;COLE,JOHN N. ;
REPT. NO. AMRL-TR-75-50-VOL-47
PROJ: AF-7231
TASK: 723104

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 48, AD-A029 617.

DESCRIPTORS: *NOISE POLLUTION, *BIOACOUSTICS, *AIRCRAFT NOISE, INFLIGHT, FLIGHT CREWS, SOUND PRESSURE, EAR PROTECTORS, SPEECH TRANSMISSION, INTERFERENCE, EXPOSURE(PHYSIOLOGY), UTILITY AIRCRAFT, OBSERVATION AIRCRAFT (U)
IDENTIFIERS: *BIOENVIRONMENTAL NOISE, O-2 AIRCRAFT, O-2B AIRCRAFT (U)

THE O-2B IS A USAF AIRBORNE PSYCHOLOGICAL WARFARE AIRCRAFT, WITH ADDITIONAL CAPABILITY FOR LIGHT CARGO, LIAISON, AND ADMINISTRATIVE TRANSPORT TYPE MISSIONS. THIS REPORT PROVIDES MEASURED DATA DEFINING THE BIOACOUSTIC ENVIRONMENTS AT FLIGHT CREW LOCATIONS INSIDE THIS AIRCRAFT DURING NORMAL FLIGHT OPERATIONS. DATA ARE REPORTED FOR TWO LOCATIONS IN A WIDE VARIETY OF PHYSICAL AND PSYCHOACOUSTIC MEASURES: OVERALL AND BAND SOUND PRESSURE LEVELS, C-WEIGHTED AND A-WEIGHTED SOUND LEVELS, PREFERRED SPEECH INTERFERENCE LEVEL, PERCEIVED NOISE LEVEL, AND LIMITING TIMES FOR TOTAL DAILY EXPOSURE OF PERSONNEL WITH AND WITHOUT STANDARD AIR FORCE EAR PROTECTORS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A029 617 13/2 20/1
AEROSPACE MEDICAL RESEARCH LAB WRIGHT-PATTERSON AFB OHIO

USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 48. T-33A IN-FLIGHT CREW NOISE. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
OCT 75 15P ROSE,JUSTUS F. , JR.;
MOHLMAN,HENRY ;FARINACCI,NICK A. ;COLE,JOHN N. ;EILERMAN,DAVID ;
REPT. NO. AMRL-TR-75-50-VOL-48
PROJ: AF-7231
TASK: 723104

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 49, AD-A029 618.

DESCRIPTORS: *NOISE POLLUTION, *BIOACOUSTICS, *AIRCRAFT NOISE, SOUND PRESSURE, INFLIGHT, FLIGHT CREWS, INTERFERENCE, SPEECH TRANSMISSION, EXPOSURE(PHYSIOLOGY), TRAINING PLANES, EAR PROTECTORS, JET AIRCRAFT (U)
IDENTIFIERS: *BIOENVIRONMENTAL NOISE, T-33 AIRCRAFT, T-33A AIRCRAFT (U)

THE T-33A IS A USAF BASIC JET TRAINING AIRCRAFT USED FOR PILOT TRANSITION TO TURBOJET FIGHTER AIRCRAFT AND FOR PILOT PROFICIENCY TRAINING. THIS REPORT PROVIDES MEASURED DATA DEFINING THE BIOACOUSTIC ENVIRONMENTS AT FLIGHT CREW LOCATIONS INSIDE THIS AIRCRAFT DURING NORMAL FLIGHT OPERATIONS. DATA ARE REPORTED FOR ONE LOCATION IN A WIDE VARIETY OF PHYSICAL AND PSYCHOACOUSTIC MEASURES: OVERALL AND BAND SOUND PRESSURE LEVELS, C-WEIGHTED AND A-WEIGHTED SOUND LEVELS, PREFERRED SPEECH INTERFERENCE LEVEL, PERCEIVED NOISE LEVEL, AND LIMITING TIMES FOR TOTAL DAILY EXPOSURE OF PERSONNEL WITH AND WITHOUT STANDARD AIR FORCE EAR PROTECTORS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A029 618 13/2 20/1
AEROSPACE MEDICAL RESEARCH LAB WRIGHT-PATTERSON AFB OHIO

USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 49. T-34A IN-FLIGHT CREW NOISE. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT., OCT 75 43P FARINACCI,NICK A. ;EILERMAN, DAVID ;COLE,JOHN N. ;MOHLMAN,HENRY ;
REPT. NO. AMRL-TR-75-50-VOL-49
PROJ: AF-7231
TASK: 723104

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 50, AD-A029 619.

DESCRIPTORS: *NOISE POLLUTION, *BIOACOUSTICS, *AIRCRAFT NOISE, FLIGHT CREWS, INFLIGHT, NOISE(SOUND), SOUND PRESSURE, SPEECH TRANSMISSION, INTERFERENCE, EAR PROTECTORS, EXPOSURE(PHYSIOLOGY), TRAINING PLANES (U)
IDENTIFIERS: *BIOENVIRONMENTAL NOISE, T-43 AIRCRAFT, T-43A AIRCRAFT (U)

THE T-43A IS A USAF SUBSONIC NAVIGATIONAL TRAINER AIRCRAFT. THIS REPORT PROVIDES MEASURED DATA DEFINING THE BIOACOUSTIC ENVIRONMENTS AT FLIGHT CREW/PASSENGER LOCATIONS INSIDE THIS AIRCRAFT DURING NORMAL FLIGHT OPERATIONS. DATA ARE REPORTED FOR 26 LOCATIONS IN A WIDE VARIETY OF PHYSICAL AND PSYCHOACOUSTIC MEASURES: OVERALL AND BAND SOUND PRESSURE LEVELS, C-WEIGHTED AND A-WEIGHTED SOUND LEVELS, PREFERRED SPEECH INTERFERENCE LEVEL, PERCEIVED NOISE LEVEL, AND LIMITING TIMES FOR TOTAL DAILY EXPOSURE OF PERSONNEL WITH AND WITHOUT STANDARD AIR FORCE EAR PROTECTORS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A029 619 13/2 20/1
AEROSPACE MEDICAL RESEARCH LAB WRIGHT-PATTERSON AFB OHIO

USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 50. HH-43B IN-FLIGHT CREW NOISE. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT., OCT 75 15P ROSE,JUSTUS F. ; JR.; FARINACCI,NICK A. ;COLE,JOHN N. ;MOHLMAN, HENRY ;EILERMAN,DAVID ;
REPT. NO. AMRL-TR-75-50-VOL-50
PROJ: AF-7231
TASK: 723104

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 51, AD-A029 620.

DESCRIPTORS: *NOISE POLLUTION, *BIOACOUSTICS, *AIRCRAFT NOISE, INFLIGHT, FLIGHT CREWS, NOISE(SOUND), SOUND PRESSURE, SPEECH TRANSMISSION, INTERFERENCE, EAR PROTECTORS, EXPOSURE(PHYSIOLOGY), HELICOPTERS, RESCUE VEHICLES (U)
IDENTIFIERS: *BIOENVIRONMENTAL NOISE, HH-43 AIRCRAFT, HH-43B AIRCRAFT, RESCUE AIRCRAFT (U)

THE HH-43B IS A USAF LOCAL CRASH RESCUE HELICOPTER USED FOR FIRE CONTROL AND SUPPRESSION, AND AERIAL/CRASH-ENTRY PICKUP OF SURVIVORS. THIS REPORT PROVIDES MEASURED DATA DEFINING THE BIOACOUSTIC ENVIRONMENTS AT FLIGHT CREW LOCATIONS INSIDE THIS HELICOPTER DURING NORMAL FLIGHT OPERATIONS. DATA ARE REPORTED FOR THREE LOCATIONS IN A WIDE VARIETY OF PHYSICAL AND PSYCHOACOUSTIC MEASURES: OVERALL AND BAND SOUND PRESSURE LEVELS, C-WEIGHTED AND A-WEIGHTED SOUND LEVELS, PREFERRED SPEECH INTERFERENCE LEVEL, PERCEIVED NOISE LEVEL, AND LIMITING TIMES FOR TOTAL DAILY EXPOSURE OF PERSONNEL WITH AND WITHOUT STANDARD AIR FORCE EAR PROTECTORS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A029 620 13/2 20/1 5/9
AEROSPACE MEDICAL RESEARCH LAB WRIGHT-PATTERSON AFB OHIO

USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 51. HH-53C IN-FLIGHT CREW NOISE. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
OCT 75 15P ROSE,JUSTUS F. , JR.;
FARINACCI,NICK A. ;COLE,JOHN N. ;MOHLMAN,
HENRY ;EILERMAN,DAVID ;
REPT. NO. AMRL-TR-75-50-VOL-51
PROJ: AF-7231
TASK: 723104

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 52, AD-A029 621.

DESCRIPTORS: *NOISE POLLUTION, *BIOACOUSTICS, *AIRCRAFT NOISE, HELICOPTERS, FLIGHT CREWS, NOISE(SOUND), HANDBOOKS, SOUND PRESSURE, INFLIGHT, AMPHIBIOUS AIRCRAFT, SEARCH AND RESCUE, SPEECH, INTERFERENCE (U)
IDENTIFIERS: *BIOENVIRONMENTAL NOISE, HH-53C AIRCRAFT, H-53 AIRCRAFT, SPEECH INTERFERENCE (U)

THE HH-53C IS A USAF HEAVY ASSAULT TRANSPORT HELICOPTER USED TO SEARCH, LOCATE, AND RECOVER COMBAT AIRCREW MEMBERS, PERSONNEL, AND/OR VITAL AEROSPACE HARDWARE. THIS REPORT PROVIDES MEASURED DATA DEFINING THE BIOACOUSTIC ENVIRONMENTS AT FLIGHT CREW LOCATIONS INSIDE THIS HELICOPTER DURING NORMAL FLIGHT OPERATIONS. DATA ARE REPORTED FOR 15 LOCATIONS IN A WIDE VARIETY OF PHYSICAL AND PSYCHOACOUSTIC MEASURES: OVERALL AND BAND SOUND PRESSURE LEVELS, C-WEIGHTED AND A-WEIGHTED SOUND LEVELS, PREFERRED SPEECH INTERFERENCE LEVEL, PERCEIVED NOISE LEVEL, AND LIMITING TIMES FOR TOTAL DAILY EXPOSURE OF PERSONNEL WITH AND WITHOUT STANDARD AIR FORCE EAR PROTECTORS. REFER TO VOLUME 1 OF THIS HANDBOOK, USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK, VOL 1: ORGANIZATION, CONTENT AND APPLICATION, AMRL-TR-75-50(1) 1975, FOR DISCUSSION OF THE OBJECTIVE AND DESIGN OF THE HANDBOOK; THE TYPES OF DATA PRESENTED, MEASUREMENT PROCEDURES, INSTRUMENTATION, DATA PROCESSING, DEFINITIONS OF QUANTITIES, SYMBOLS, EQUATIONS, APPLICATIONS, LIMITATIONS, ETC. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A029 621 13/2 20/1
AEROSPACE MEDICAL RESEARCH LAB WRIGHT-PATTERSON AFB OHIO

USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 52. A-1E IN-FLIGHT CREW NOISE. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
NOV 75 15P ROSE,JUSTUS F. , JR.;
FARINACCI,NICK A. ;COLE,JOHN N. ;MOHLMAN,
HENRY ;EILERMAN,DAVID ;
REPT. NO. AMRL-TR-75-50-VOL-52
PROJ: AF-7231
TASK: 723104

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 53, AD-A029 622.

DESCRIPTORS: *NOISE POLLUTION, *BIOACOUSTICS, *AIRCRAFT NOISE, INFLIGHT, FLIGHT CREWS, NOISE(SOUND), SOUND PRESSURE, INTERFERENCE, EXPOSURE(PHYSIOLOGY), EAR PROTECTORS, VOICE COMMUNICATIONS, BOMBER AIRCRAFT, UTILITY AIRCRAFT (U)
IDENTIFIERS: *BIOENVIRONMENTAL NOISE, A-1 AIRCRAFT, A-1E AIRCRAFT (U)

THE A-1E IS A USAF LIGHT ATTACK BOMBER OR UTILITY AIRCRAFT USED IN COUNTER-INSURGENCY OPERATIONS. THIS REPORT PROVIDES MEASURED DATA DEFINING THE BIOACOUSTIC ENVIRONMENTS AT FLIGHT CREW LOCATIONS INSIDE THIS AIRCRAFT DURING NORMAL FLIGHT OPERATIONS. DATA ARE REPORTED FOR ONE LOCATION IN A WIDE VARIETY OF PHYSICAL AND PSYCHOACOUSTIC MEASURES: OVERALL AND BAND SOUND PRESSURE LEVELS, C-WEIGHTED AND A-WEIGHTED SOUND LEVELS, PREFERRED SPEECH INTERFERENCE LEVEL, PERCEIVED NOISE LEVEL, AND LIMITING TIMES FOR TOTAL DAILY EXPOSURE OF PERSONNEL WITH AND WITHOUT STANDARD AIR FORCE EAR PROTECTORS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A029 622 13/2 20/1
AEROSPACE MEDICAL RESEARCH LAB WRIGHT-PATTERSON AFB OHIO

USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 53. AC-119G IN-FLIGHT CREW NOISE. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
NOV 75 13P ROSE,JUSTUS F. , JR.;
FARINACCI,NICK A. ;COLE,JOHN N. ;MOHLMAN, HENRY ;EILERMAN,DAVID ;
REPT. NO. AMRL-TR-75-50-VOL-53
PROJ: AF-7231
TASK: 723104

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 54, AD-A029 623.

DESCRIPTORS: *NOISE POLLUTION, *BIOACOUSTICS, *AIRCRAFT NOISE, GUNSHIPS, FLIGHT CREWS, PASSENGERS, SOUND PRESSURE, INTENSITY, SPEECH TRANSMISSION, INTERFERENCE, EXPOSURE(PHYSIOLOGY), EAR PROTECTORS, INFLIGHT, HANDBOOKS (U)
IDENTIFIERS: *BIOENVIRONMENTAL NOISE, AC-119G AIRCRAFT, C-119 AIRCRAFT (U)

THE AC-119G IS A USAF GUNSHIP FOR INTERDICTION AND SUPPRESSION OF ENEMY GROUND ATTACK. THIS REPORT PROVIDES MEASURED DATA DEFINING THE BIOACOUSTIC ENVIRONMENTS AT FLIGHT CREW/PASSENGER LOCATIONS INSIDE THIS AIRCRAFT DURING NORMAL FLIGHT OPERATIONS. DATA ARE REPORTED FOR 6 LOCATIONS IN A WIDE VARIETY OF PHYSICAL AND PSYCHOACOUSTIC MEASURES: OVERALL AND BAND SOUND PRESSURE LEVELS, C-WEIGHTED AND A-WEIGHTED SOUND LEVELS, PREFERRED SPEECH INTERFERENCE LEVEL, PERCEIVED NOISE LEVEL, AND LIMITING TIMES FOR TOTAL DAILY EXPOSURE OF PERSONNEL WITH AND WITHOUT STANDARD AIR FORCE EAR PROTECTORS. REFER TO VOLUME 1 OF THIS HANDBOOK, 'USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK, VOL 1: ORGANIZATION, CONTENT AND APPLICATIONS', AMRL-TR-75-50(1) 1975, FOR DISCUSSION OF THE OBJECTIVE AND DESIGN OF THE HANDBOOK, THE TYPES OF DATA PRESENTED, MEASUREMENT PROCEDURES, INSTRUMENTATION, DATA PROCESSING, DEFINITIONS OF QUANTITIES, SYMBOLS, EQUATIONS, APPLICATIONS, LIMITATIONS, ETC. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A029 623 13/2 20/1
AEROSPACE MEDICAL RESEARCH LAB WRIGHT-PATTERSON AFB OHIO

USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 54. C-123K IN-FLIGHT CREW NOISE. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
SEP 75 24P ROSE,JUSTUS F. , JR.;
FARINACCI,NICK A. ;COLE,JOHN N. ;MOHLMAN,
HENRY ;EILERMAN,DAVID ;
REPT. NO. AMRL-TR-75-50-VOL-54
PROJ: AF-7231
TASK: 723104

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 55, AD-A029 624.

DESCRIPTORS: *NOISE POLLUTION, *BIOACOUSTICS, *AIRCRAFT NOISE, TRANSPORT AIRCRAFT, FLIGHT CREWS, PASSENGERS, SOUND PRESSURE, INTENSITY, SPEECH TRANSMISSION, INTERFERENCE, EAR PROTECTORS, EXPOSURE(PHYSIOLOGY), INFLIGHT, HANDBOOKS (U)
IDENTIFIERS: *BIOENVIRONMENTAL NOISE, C-123K AIRCRAFT (U)

THE C-123K IS A USAF MEDIUM ASSAULT CARGO AIRCRAFT USED AS A TROOP TRANSPORT AND CARGO CARRIER WITH STOL CAPABILITY. THIS REPORT PROVIDES MEASURED DATA DEFINING THE BIOACOUSTIC ENVIRONMENTS AT FLIGHT CREW/PASSENGER LOCATIONS INSIDE THIS AIRCRAFT DURING NORMAL FLIGHT OPERATIONS. DATA ARE REPORTED FOR 13 LOCATIONS IN A WIDE VARIETY OF PHYSICAL AND PSYCHOACOUSTIC MEASURES: OVERALL AND BAND SOUND PRESSURE LEVELS, C-WEIGHTED AND A-WEIGHTED SOUND LEVELS, PREFERRED SPEECH INTERFERENCE LEVEL, PERCEIVED NOISE LEVEL, AND LIMITING TIMES FOR TOTAL DAILY EXPOSURE OF PERSONNEL WITH AND WITHOUT STANDARD AIR FORCE EAR PROTECTORS. REFER TO VOLUME 1 OF THIS HANDBOOK, 'USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK, VOL 1: ORGANIZATION, CONTENT AND APPLICATION', AMRL-TR-75-50(1) 1975, FOR DISCUSSION OF THE OBJECTIVE AND DESIGN OF THE HANDBOOK, THE TYPES OF DATA PRESENTED, MEASUREMENT PROCEDURES, INSTRUMENTATION, DATA PROCESSING, DEFINITIONS OF QUANTITIES, SYMBOLS, EQUATIONS, APPLICATIONS, LIMITATIONS, ETC. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A029 624 13/2 20/1
AEROSPACE MEDICAL RESEARCH LAB WRIGHT-PATTERSON AFB OHIO

USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 55. AC-130A IN-FLIGHT CREW NOISE. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
NOV 75 13P ROSE,JUSTUS F. , JR.;
FARINACCI,NICK A. ;COLE,JOHN N. ;MOHLMAN, HENRY ;EILERMAN,DAVID ;
REPT. NO. AMRL-TR-75-50-VOL-55
PROJ: AF-7231
TASK: 723104

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 56, AD-A029 625.

DESCRIPTORS: *NOISE POLLUTION, *BIOACOUSTICS, *AIRCRAFT NOISE, TRANSPORT AIRCRAFT, SOUND PRESSURE, INTENSITY, FLIGHT CREWS, PASSENGERS, SPEECH TRANSMISSION, INTERFERENCE, EXPOSURE(PHYSIOLOGY), INFLIGHT, HANDBOOKS (U)
IDENTIFIERS: *BIOENVIRONMENTAL NOISE, AC-130A AIRCRAFT, C-130 AIRCRAFT (U)

THE AC-130A IS A USAF CLOSE-SUPPORT CONVERSION OF THE C-130A MEDIUM-RANGE COMBAT TRANSPORT AIRCRAFT. THIS REPORT PROVIDES MEASURED DATA DEFINING THE BIOACOUSTIC ENVIRONMENTS AT FLIGHT CREW/PASSENGER LOCATIONS INSIDE THIS AIRCRAFT DURING NORMAL FLIGHT OPERATIONS. DATA ARE REPORTED FOR 15 LOCATIONS IN A WIDE VARIETY OF PHYSICAL AND PSYCHOACOUSTIC MEASURES: OVERALL AND BAND SOUND PRESSURE LEVELS, C-WEIGHTED AND A-WEIGHTED SOUND LEVELS, PERFERRED SPEECH INTERFERENCE LEVEL, PERCEIVED NOISE LEVEL, AND LIMITING TIMES FOR TOTAL DAILY EXPOSURE OF PERSONNEL WITH AND WITHOUT STANDARD AIR FORCE EAR PROTECTORS, REFER TO VOLUME 1 OF THIS HANDBOOK, 'USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK, VOL 1: ORGANIZATION, CONTENT AND APPLICATION', AMRL-TR-75-50(1) 1975, FOR DISCUSSION OF THE OBJECTIVE AND DESIGN OF THE HANDBOOK, THE TYPES OF DATA PRESENTED, MEASUREMENT PROCEDURES, INSTRUMENTATION, DATA PROCESSING, DEFINITIONS OF QUANTITIES, SYMBOLS, EQUATIONS, APPLICATIONS, LIMITATIONS, ETC. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A029 625 13/2 20/1
AEROSPACE MEDICAL RESEARCH LAB WRIGHT-PATTERSON AFB OHIO

USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 56. HC-130N IN-FLIGHT CREW NOISE. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
NOV 75 21P ROSE,JUSTUS F. , JR.;
FARINACCI,NICK A. ;COLE,JOHN N. ;MOHLMAN,
HENRY ;EILERMAN,DAVID ;
REPT. NO. AMRL-TR-75-50-VOL-56
PROJ: AF-7231
TASK: 723104

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 57, AD-A029 626.

DESCRIPTORS: *NOISE POLLUTION, *BIOACOUSTICS, *AIRCRAFT NOISE, INFLIGHT, FLIGHT CREWS, NOISE(SOUND), SOUND PRESSURE, INTERFERENCE, EXPOSURE(PHYSIOLOGY), EAR PROTECTORS, SPEECH TRANSMISSION, TANKER PLANES, RESCUE VEHICLES, TRANSPORT AIRCRAFT (U)
IDENTIFIERS: *BIOENVIRONMENTAL NOISE, HC-130 AIRCRAFT, HC-130N AIRCRAFT (U)

THE HC-130N IS A USAF AIRCRAFT USED TO SEARCH FOR, LOCATE AND RECOVER PERSONNEL AND/OR RETRIEVE MATERIAL IN GLOBAL AIR AND SPACE OPERATIONS; IT ALSO SERVES AS AN AIR REFUELING TANKER FOR HELICOPTERS. THIS REPORT PROVIDES MEASURED DATA DEFINING THE BIOACOUSTIC ENVIRONMENTS AT FLIGHT CREW/PASSENGER LOCATIONS INSIDE THIS AIRCRAFT DURING NORMAL FLIGHT OPERATIONS. DATA ARE REPORTED FOR 14 LOCATIONS IN A WIDE VARIETY OF PHYSICAL AND PSYCHOACOUSTIC MEASURES: OVERALL AND BAND SOUND PRESSURE LEVELS, C-WEIGHTED AND A-WEIGHTED SOUND LEVELS, PREFERRED SPEECH INTERFERENCE LEVEL, PERCEIVED NOISE LEVEL, AND LIMITING TIMES FOR TOTAL DAILY EXPOSURE OF PERSONNEL WITH AND WITHOUT STANDARD AIR FORCE EAR PROTECTORS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A029 626 13/2 20/1
AEROSPACE MEDICAL RESEARCH LAB WRIGHT-PATTERSON AFB OHIO

USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 57. T-28D-5 IN-FLIGHT CREW NOISE. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
NOV 75 15P ROSE,JUSTUS F. , JR.;
FARINACCI,NICK A. ;COLE,JOHN N. ;MOHLMAN, HENRY ;EILERMAN,DAVID ;
REPT. NO. AMRL-TR-75-50-VOL-57
PROJ: AF-7231
TASK: 723105

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 60, AD-A029 627.

DESCRIPTORS: *NOISE POLLUTION, *BIOACOUSTICS, *AIRCRAFT NOISE, INFLIGHT, FLIGHT CREWS, NOISE(SOUND), SOUND PRESSURE, INTERFERENCE, EXPOSURE(PHYSIOLOGY), RECONNAISSANCE AIRCRAFT, EAR PROTECTORS, SPEECH TRANSMISSION, CLOSE SUPPORT (U)
IDENTIFIERS: *BIOENVIRONMENTAL NOISE, T-28 AIRCRAFT, T-28D-5 AIRCRAFT (U)

THE T-28D-5 IS A USAF LIGHT ARMED RECONNAISSANCE AND CLOSE AIR SUPPORT AIRCRAFT USED FOR COUNTER-INSURGENCY OPERATIONS. THIS REPORT PROVIDES MEASURED DATA DEFINING THE BIOACOUSTIC ENVIRONMENTS AT FLIGHT CREW LOCATIONS INSIDE THIS AIRCRAFT DURING NORMAL FLIGHT OPERATIONS. DATA ARE REPORTED FOR ONE LOCATION IN A WIDE VARIETY OF PHYSICAL AND PSYCHOACOUSTIC MEASURES: OVERALL AND BAND SOUND PRESSURE LEVELS, C-WEIGHTED AND A-WEIGHTED SOUND LEVELS, PREFERRED SPEECH INTERFERENCE LEVEL, PERCEIVED NOISE LEVEL, AND LIMITING TIMES FOR TOTAL DAILY EXPOSURE OF PERSONNEL WITH AND WITHOUT STANDARD AIR FORCE EAR PROTECTORS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A029 627 13/2 20/1 5/9
AEROSPACE MEDICAL RESEARCH LAB WRIGHT-PATTERSON AFB OHIO

USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 60. UH-1N IN-FLIGHT CREW NOISE. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT., NOV 75 15P ROSE,JUSTUS F. , JR.; FARINACCI,NICK A. ;COLE,JOHN N. ;MOHLMAN, HENRY ;EILERMAN,DAVID ;
REPT. NO. AMRL-TR-75-50-VOL-60
PROJ: AF-7231
TASK: 723104

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 61, AD-A029 628.

DESCRIPTORS: *NOISE POLLUTION, *BIOACOUSTICS, *AIRCRAFT NOISE, HELICOPTERS, FLIGHT CREWS, HANDBOOKS, NOISE(SOUND), GUNSHIPS, INFLIGHT, EAR PROTECTORS, INTERFERENCE, SOUND PRESSURE, SPEECH, EXPOSURE(PHYSIOLOGY) (U)
IDENTIFIERS: *BIOENVIRONMENTAL NOISE, UH-1N AIRCRAFT, H-1 AIRCRAFT, SPEECH INTERFERENCE (U)

THE UH-1N IS A USAF UTILITY HELICOPTER CONFIGURED AS A GUNSHIP. THIS REPORT PROVIDES MEASURED DATA DEFINING THE BIOACOUSTIC ENVIRONMENTS AT FLIGHT CREW LOCATIONS INSIDE THIS HELICOPTER DURING NORMAL FLIGHT OPERATIONS. DATA ARE REPORTED FOR ONE LOCATION IN A WIDE VARIETY OF PHYSICAL AND PSYCHOACOUSTIC MEASURES: OVERALL AND BAND SOUND PRESSURE LEVELS, C-WEIGHTED AND A-WEIGHTED SOUND LEVELS, PREFERRED SPEECH INTERFERENCE LEVEL, PERCEIVED NOISE LEVEL, AND LIMITING TIMES FOR TOTAL DAILY EXPOSURE OF PERSONNEL WITH AND WITHOUT STANDARD AIR FORCE EAR PROTECTORS. REFER TO VOLUME 1 OF THIS HANDBOOK, USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK, VOL 1: ORGANIZATION, CONTENT AND APPLICATION, AMRL-TR-75-50(1) 1975, FOR DISCUSSION OF THE OBJECTIVE AND DESIGN OF THE HANDBOOK, THE TYPES OF DATA PRESENTED, MEASUREMENT PROCEDURES, INSTRUMENTATION, DATA PROCESSING, DEFINITIONS OF QUANTITIES, SYMBOLS, EQUATIONS, APPLICATIONS, LIMITATIONS, ETC. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A029 628 13/2 20/1 5/9
AEROSPACE MEDICAL RESEARCH LAB WRIGHT-PATTERSON AFB OHIO

USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 61. HH-3E IN-FLIGHT CREW NOISE. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
NOV 75 15P ROSE,JUSTUS F. , JR.;
FARINACCI,NICK A. ;COLE,JOHN N. ;MOHLMAN, HENRY ;EILERMAN,DAVID ;
REPT. NO. AMRL-TR-75-50-VOL-61
PROJ: AF-7231
TASK: 723104

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 62, AD-029 629.

DESCRIPTORS: *NOISE POLLUTION, *BIOACOUSTICS, *AIRCRAFT NOISE, HELICOPTERS, FLIGHT CREWS, HANDBOOKS, NOISE(SOUND), AMPHIBIOUS AIRCRAFT, SEARCH AND RESCUE, INFLIGHT, INTERFERENCE, SOUND PRESSURE, SPEECH, EXPOSURE(PHYSIOLOGY) (U)
IDENTIFIERS: *BIOENVIRONMENTAL NOISE, HH-3E AIRCRAFT, H-3 AIRCRAFT, SPEECH INTERFERENCE (U)

THE HH-3E IS A USAF AMPHIBIOUS TRANSPORT HELICOPTER USED FOR SEARCH AND RESCUE, AND COMBAT AIRCREW RECOVERY. THIS REPORT PROVIDES MEASURED DATA DEFINING THE BIOACOUSTIC ENVIRONMENTS AT FLIGHT CREW LOCATIONS INSIDE THIS HELICOPTER DURING NORMAL FLIGHT OPERATIONS. DATA ARE REPORTED FOR SEVEN LOCATIONS IN A WIDE VARIETY OF PHYSICAL AND PSYCHOACOUSTIC MEASURES: OVERALL AND BAND SOUND PRESSURE LEVELS, C-WEIGHTED AND A-WEIGHTED SOUND LEVELS, PREFERRED SPEECH INTERFERENCE LEVELS, PERCEIVED NOISE LEVEL, AND LIMITING TIMES FOR TOTAL DAILY EXPOSURE OF PERSONNEL WITH AND WITHOUT STANDARD AIR FORCE EAR PROTECTORS. REFER TO VOLUME 1 OF THIS HANDBOOK, USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK, VOL 1: ORGANIZATION, CONTENT AND APPLICATION, AMRL-TR-75-50(1) 1975, FOR DISCUSSION OF THE OBJECTIVE AND DESIGN OF THE HANDBOOK, THE TYPES OF DATA PRESENTED, MEASUREMENT PROCEDURES; INSTRUMENTATION; DATA PROCESSING, DEFINITIONS OF QUANTITIES, SYMBOLS, EQUATIONS, APPLICATIONS, LIMITATIONS, ETC. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A029 629 13/2 20/1
AEROSPACE MEDICAL RESEARCH LAB WRIGHT-PATTERSON AFB OHIO

USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 62. C-5A IN-FLIGHT CREW/PASSENGER NOISE. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT., NOV 75 30P ROSE,JUSTUS F. , JR.; FARINACCI,NICK A. ;COLE,JOHN N. ;MOHLMAN, HENRY ;EILERMAN,DAVID ;
REPT. NO. AMRL-TR-75-50-VOL-62
PROJ: AF-7231
TASK: 723140

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 63, AD-A029 630.

DESCRIPTORS: *NOISE POLLUTION, *BIOACOUSTICS, *AIRCRAFT NOISE, TURBOFAN ENGINES, JET TRANSPORT PLANES, FLIGHT CREWS, PASSENGERS, SOUND PRESSURE, INTENSITY, SPEECH TRANSMISSION, INTERFERENCE, EAR PROTECTORS, EXPOSURE(PHYSIOLOGY), INFLIGHT, HANDBOOKS (U)
IDENTIFIERS: *BIOENVIRONMENTAL NOISE, C-5A AIRCRAFT, C-5 AIRCRAFT (U)

THE C-5A IS A USAF HEAVY LOGISTICS TRANSPORT AIRCRAFT. THIS REPORT PROVIDES MEASURED DATA DEFINING THE BIOACOUSTIC ENVIRONMENTS AT FLIGHT CREW/PASSENGER LOCATIONS INSIDE THIS AIRCRAFT DURING NORMAL FLIGHT OPERATIONS. DATA ARE REPORTED FOR 66 LOCATIONS IN A WIDE VARIETY OF PHYSICAL AND PSYCHOACOUSTIC MEASURES: OVERALL AND BAND SOUND PRESSURE LEVELS, C-WEIGHTED AND A-WEIGHTED SOUND LEVELS, PREFERRED SPEECH INTERFERENCE LEVEL, PERCEIVED NOISE LEVEL, AND LIMITING TIMES FOR TOTAL DAILY EXPOSURE OF PERSONNEL WITH AND WITHOUT STANDARD AIR FORCE EAR PROTECTORS. REFER TO VOLUME 1 OF THIS HANDBOOK, 'USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK, VOL 1: ORGANIZATION, CONTENT AND APPLICATION', AMRL-TR-75-50(1) 1975, FOR DISCUSSION OF THE OBJECTIVE AND DESIGN OF THE HANDBOOK, THE TYPES OF DATA PRESENTED, MEASUREMENT PROCEDURES, INSTRUMENTATION, DATA PROCESSING, DEFINITIONS OF QUANTITIES, SYMBOLS, EQUATIONS, APPLICATIONS, LIMITATIONS, ETC. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A030 376 21/5
GENERAL ELECTRIC CO CINCINNATI OHIO AIRCRAFT ENGINE GROUP

CORE ENGINE NOISE PROGRAM. VOLUME III. PREDICTION METHODS -- SUPPLEMENT I. - EXTENSION OF PREDICTION METHODS. (U)

DESCRIPTIVE NOTE: FINAL REPT. JUN 74-MAY 75, MAR 76 51P EMMERLING,J. J. ;KAZIN,S. B. ;MATTA,R. K. ;
REPT. NO. R76AEG305-VOL-3-SUPPL-1
CONTRACT: DOT-FA72WA-3023
MONITOR: FAA-RD 74-125-3-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SUPPLEMENT TO REPORT DATED AUG 74, REPT. NO. FAA-RD-74-125-3, VOLUME 3, AD-A013 131.

DESCRIPTORS: *TURBOFAN ENGINES, *JET ENGINE NOISE, AIRCRAFT NOISE, NOISE REDUCTION, NOISE POLLUTION, ENGINE COMPONENTS, ACOUSTIC MEASUREMENT, COMMERCIAL AIRCRAFT, ATTENUATION, LOW FREQUENCY (U)
IDENTIFIERS: NOISE SOURCES (U)

THE CORE NOISE PREDICTION TECHNIQUE DESCRIBED IN VOLUME III WAS VALIDATED USING SEVERAL ADDITIONAL SETS OF ENGINE DATA. THE DATA INCLUDED DISCERNIBLE CORE NOISE AT HIGH POWER SETTINGS AND WERE DERIVED FROM BOTH GENERAL ELECTRIC AND EXTERNAL TESTS, ON ENGINES BY GE AND OTHER MANUFACTURERS. THE THREE LINE POWER LEVEL PREDICTION METHOD WAS COLLAPSED TO SINGLE UNIFIED LINE PREDICTION THROUGH ADDITION OF A TURBINE WORK EXTRACTION TERM TO ACCOUNT FOR THE LOW FREQUENCY NOISE ATTENUATION DUE TO TURBINE BLADING. DATA FROM COMBUSTOR COMPONENT TESTS WERE COMPARED TO ENGINE NOISE LEVELS AND FOUND TO INDICATE SIGNIFICANT ATTENUATION OF LOW FREQUENCY NOISE IN PROPAGATION THROUGH TURBINE STAGES. AN ANALYTICAL METHOD FOR PREDICTING THIS LOW FREQUENCY NOISE ATTENUATION IS PROVIDED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A030 639 20/1 1/3 14/2
NATIONAL RESEARCH COUNCIL OF CANADA OTTAWA (ONTARIO) DIV OF MECHANICAL ENGINEERING

MODEL STUDY OF A PROPOSED ENGINEERING ACOUSTIC RESEARCH FACILITY (ETUDE SUR MODELE D'UN PROJET D'INSTALLATION DE RECHERCHES EN GENIE ACOUSTIQUE), (U)

JUL 76 29P JOHNSTON,G. W. ;RUETER,F. ;CHAPPELL,M. S. ;
REPT. NO. DME-ME-243
MONITOR: NRC 15480

UNCLASSIFIED REPORT

DESCRIPTORS: *ACOUSTICS, *BACKGROUND NOISE, *JET ENGINE NOISE, TEST FACILITIES, RESEARCH FACILITIES, MODELS, ANECHOIC CHAMBERS, MEASUREMENT, AIRCRAFT LANDINGS, TAKEOFF, VERTICAL TAKEOFF AIRCRAFT, SHORT TAKEOFF AIRCRAFT, CANADA (U)
IDENTIFIERS: AEROACOUSTIC MODELS (U)

A ONE-TWELFTH SCALE AEROACOUSTIC MODEL OF A PROPOSED ENGINEERING ACOUSTIC RESEARCH FACILITY HAS BEEN TESTED TO ASSESS THE BACKGROUND NOISE LEVELS IN THE ANECHOIC MEASUREMENT AREA, AND TO DEVELOP A SUITABLE EXHAUST COLLECTOR FOR DEFLECTED JET CONDITIONS. THE FACILITY COMPRISES AN OPEN CIRCUIT, OPEN JET WIND TUNNEL WITH AN ANECHOIC SPACE SURROUNDING THE TEST SECTION. COLLECTOR CONFIGURATIONS WITH ACCEPTABLY LOW BACKGROUND NOISE AND LOW SENSITIVITY TO JET DEFLECTION HAVE BEEN DEFINED, BUT THESE FEATURES WERE ACHIEVED AT THE EXPENSE OF SOME AERODYNAMIC EFFICIENCY. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A030 655 20/1 1/3 9/2
BOEING COMMERCIAL AIRPLANE CO SEATTLE WASH

AIRCRAFT CONFIGURATION NOISE REDUCTION.
VOLUME I. ENGINEERING ANALYSIS. (U)

DESCRIPTIVE NOTE: FINAL REPT. AUG 74-JUN 76,
JUN 76 412P DUNN,D. G. ;BUTZEL,L. M.
;DIBLASI,A. ;FILLER,L. ;JACOBS,L. D. ;
REPT. NO. D6-42849-1
CONTRACT: DOT-FA74WA-3497
MONITOR: FAA/RD 76/76-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-A030 656.

DESCRIPTORS: *AIRCRAFT NOISE, *NOISE REDUCTION, *JET ENGINE NOISE, CONFIGURATIONS, COMPUTER PROGRAMS, SHIELDING, FUSELAGES, WINGS, TURBOFAN ENGINES, BYPASS ENGINES (U)
IDENTIFIERS: *NOISE SUPPRESSION, ENGINEERING ANALYSIS (U)

THIS REPORT DISCUSSES USE OF WING AND FUSELAGE STRUCTURES AS NOISE BARRIERS FOR SHIELDING AIRCRAFT ENGINE NOISE FROM THE COMMUNITY. THE REPORT CONCERNS USE OF FAVORABLE AIRCRAFT CONFIGURATIONS FOR COMMUNITY NOISE REDUCTION OF TURBOJET AND TURBOFAN POWERED AIRCRAFT. SIGNIFICANT NOISE REDUCTION POTENTIAL IS ILLUSTRATED ON A HYPOTHETICAL ENGINE-OVER-WING (EOW) CONFIGURATION USING HIGH-BYPASS-RATIO TURBOFAN ENGINES. NOISE SHIELDING ESTIMATION PROCEDURES ARE DEVELOPED FOR TWO TYPES OF CONFIGURATION NOISE REDUCTION CONCEPTS; I.E., THE EOW AND THE ENGINE-OVER-FUSELAGE (EOF). RESULTS ARE DESCRIBED FOR A THEORETICAL ANALYSIS, A MAJOR BOEING/AERITALIA TEST PROGRAM, AND AN EMPIRICAL ANALYSIS OF TEST DATA. AS A RESULT, ANALYTICAL PREDICTION PROCEDURES ARE DEFINED, COMPUTERIZED, AND ADDED TO THE SOFTWARE PREVIOUSLY DEVELOPED UNDER NASA CONTRACT NAS2-6969. THE SHIELDING PREDICTION PROCEDURES CONSIDER INDIVIDUAL NOISE COMPONENTS: INLET FAN, COMPRESSOR, EXIT FAN, CORE, TURBINE, AND JET NOISE. A NEW SOURCE, JET/EDGE INTERACTION NOISE, CAN ALSO BE PREDICTED USING THE PROCEDURES. THE COLLECTIVE SOFTWARE, INCORPORATING THE SHIELDING PACKAGE OF THIS REPORT, CAN BE USED TO ESTIMATE COMMUNITY NOISE LEVELS OF WING AND FUSELAGE SHIELDED TURBOFAN OR TURBOJET NOISE. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A030 656 20/1 1/3 9/2
BOEING COMMERCIAL AIRPLANE CO SEATTLE WASH

AIRCRAFT CONFIGURATION NOISE REDUCTION.
VOLUME II. COMPUTER PROGRAM USER'S GUIDE
AND OTHER APPENDICES. (U)

DESCRIPTIVE NOTE: FINAL REPT. AUG 74-JUN 76,
JUN 76 140P DUNN,D. G. ;CECIL,D. J.
;BUTZEL,L. M. ;CAMPBELL,J. M. ;LU,H. Y. ;

REPT. NO. D6-42849-2
CONTRACT: DOT-FA74WA-3497
MONITOR: FAA/RD 76/76-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 3, AD-A030 657.

DESCRIPTORS: *AIRCRAFT NOISE, *NOISE REDUCTION, *JET ENGINE NOISE, *COMPUTER PROGRAMS, COMPUTER PROGRAM DOCUMENTATION, USER NEEDS, VELOCITY, WINGS, FUSELAGES, CONFIGURATIONS, FORTRAN, INTERFACES, DIFFRACTION, SUBROUTINES (U)
IDENTIFIERS: USERS MANUALS, COMPUTER SOFTWARE (U)

THIS REPORT IS VOLUME 2 OF THE SERIES AND WAS PREPARED JOINTLY BY THE NOISE TECHNOLOGY STAFF OF THE BOEING COMMERCIAL AIRPLANE COMPANY AND THE NOISE SYSTEMS GROUP OF BOEING COMPUTER SERVICES, INC. THIS VOLUME CONTAINS: THE USER'S GUIDE FOR THE COMPUTER SOFTWARE OF THE AIRCRAFT CONFIGURATION NOISE REDUCTION STUDY; A PRELIMINARY TEST PLAN FOR ASSESSING FORWARD VELOCITY EFFECTS ON WING AND FUSELAGE SHIELDING; AND VARIOUS CURVES, DERIVATIONS, AND BACKGROUND THEORY IN SUPPORT OF MATERIAL PRESENTED IN VOLUME 1. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A030 657 20/1 1/3 9/2
BOEING COMMERCIAL AIRPLANE CO SEATTLE WASH

AIRCRAFT CONFIGURATION NOISE REDUCTION. VOLUME III. COMPUTER PROGRAM SOURCE LISTING. (U)

DESCRIPTIVE NOTE: FINAL REPT. AUG 74-JUN 76, JUN 76 298P DUNN,D. G. ;CECIL,D. J. ;
REPT. NO. D6-42849-3
CONTRACT: DOT-FA74WA-3497
MONITOR: FAA/RD 76/76-3

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 1, AD-A030 655.

DESCRIPTORS: *AIRCRAFT NOISE, *NOISE REDUCTION, *JET ENGINE NOISE, *COMPUTER PROGRAMS, FORTRAN, SUBROUTINES, COMPUTER PRINTOUTS, OVERLAYS, COMPILERS, MAGNETIC TAPE, CONFIGURATIONS, MACHINE CODING (U)
IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE (U)

THIS REPORT IS VOLUME 3 OF THE SERIES AND WAS JOINTLY PREPARED BY THE NOISE TECHNOLOGY STAFF OF THE BOEING COMMERCIAL AIRPLANE COMPANY AND THE NOISE SYSTEMS GROUP OF BOEING COMPUTER SERVICES, INC. THIS VOLUME CONTAINS THE SOURCE CODE LISTING OF THE COMPUTER PROGRAMS FOR EVALUATING AIRCRAFT CONFIGURATION NOISE REDUCTION AS DEFINED IN THE ENGINEERING DOCUMENT, VOLUME 1. THE USER'S GUIDE FOR THE PROGRAMS IS CONTAINED IN APPENDIX A OF VOLUME 2. THE MATERIAL PRESENTED HEREIN IS REFERENCE DATA FOR USE IN CONJUNCTION WITH THE MATERIAL PRESENTED IN VOLUMES 1 AND 2. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A031 449 1/3 17/7 20/1
CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN ILL

TECHNICAL BACKGROUND: INTERIM CRITERIA FOR PLANNING ROTARY-WING AIRCRAFT TRAFFIC PATTERNS, AND SITING NOISE-SENSITIVE LAND USES. (U)

DESCRIPTIVE NOTE: INTERIM REPT.,
SEP 76 17P SCHOMER,P. D. ;HOMANS,B. L. ;
REPT. NO. CERL-IR-N-9
PROJ: DA-4-A762720-A-896
TASK: 4-A-762720-A-89602

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-A031 450.

DESCRIPTORS: *ROTARY WING AIRCRAFT, *LAND USE, *AIRCRAFT NOISE, *HELICOPTERS, *AIR TRAFFIC CONTROL SYSTEM ANALYSIS, *FLIGHT PATHS, PLANNING, URBAN AREAS, PATTERNS, LANDING FIELDS, RANGE(DISTANCE) (U)
IDENTIFIERS: *FLIGHT CORRIDORS, *AIR CORRIDORS, *CORRIDORS(TRAJECTORIES) (U)

THIS REPORT PRESENTS INTERIM CRITERIA FOR LOCATING ROTARY-WING AIRCRAFT TRAFFIC PATTERNS AND INGRESS AND EGRESS CORRIDORS INTO AN AIRFIELD/HELIPORT TO AVOID CONFLICT WITH NOISE-SENSITIVE LAND USES, AND PROVIDES CRITERIA FOR PLANNERS TO SITE NOISE-SENSITIVE LAND USES WITH RESPECT TO THE ESTABLISHED AIRFIELD/ HELIPORT AND ESTABLISHED FLIGHT CORRIDORS. THESE INTERIM CRITERIA ARE REQUIRED BECAUSE THE EXACT AIR FORCE TECHINIQUE FOR PREDICTING FIXED-WING AIRCRAFT NOISE CANNOT CURRENTLY BE USED DUE TO THE UPREDICTABILITY OF HELICOPTER FLIGHT PATTERNS; THESE CRITERIA ARE THE BASIS FOR INTERIM PROCEDURES ESTABLISHED IN A COMPANION REPORT, USER MANUAL: INTERIM PROCEDURE FOR PLANNING ROTARY-WING AIRCRAFT TRAFFIC PATTERNS AND SITING NOISE-SENSITIVE LAND USES (CONSTRUCTION ENGINEERING RESEARCH LABORATORY INTERIM REPORT N-10, 1976). (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A031 450 1/3 17/7 20/1
CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN ILL

USER MANUAL: INTERIM PROCEDURE FOR PLANNING ROTARY-WING AIRCRAFT TRAFFIC PATTERNS AND SITING NOISE-SENSITIVE LAND USES. (U)

DESCRIPTIVE NOTE: INTERIM REPT., SEP 76 40P SCHOMER,P. D. ;HOMANS,B. L. ;
REPT. NO. CERL-IR-N-10
PROJ: DA-4-A-762720-A-896
TASK: 4-A-762720-A-89602

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-A031 449.

DESCRIPTORS: *ROTARY WING AIRCRAFT, *LAND USE, *AIRCRAFT NOISE, *HELICOPTERS, *AIR TRAFFIC CONTROL SYSTEM ANALYSIS, *FLIGHT PATHS, PLANNING, PATTERNS, CONTOURS, URBAN AREAS, LANDING FIELDS, RANGE(DISTANCE) (U)
IDENTIFIERS: *FLIGHT CORRIDORS, *AIR CORRIDORS, USER MANUALS, CORRIDORS(TRAJECTORIES) (U)

THIS REPORT PRESENTS (1) INTERIM PROCEDURES FOR DETERMINING THE LOCATION OF ROTARY-WING AIRCRAFT TRAFFIC PATTERNS AND INGRESS AND EGRESS CORRIDORS INTO AN AIRFIELD/HELIPORT AREA TO AVOID CONFLICT WITH NOISE-SENSITIVE LAND USES, AND (2) CRITERIA FOR SITING NOISE-SENSITIVE LAND USES WITH RESPECT TO ESTABLISHED AIRFIELD OR HELIPORT PLANS. THE PROCEDURES ARE BASED ON INTERIM CRITERIA ESTABLISHED IN A COMPANION REPORT, TECHNICAL BACKGROUND: INTERIM CRITERIA FOR PLANNING ROTARY-WING AIRCRAFT TRAFFIC PATTERNS AND SITING NOISE-SENSITIVE LAND USES (CONSTRUCTION ENGINEERING RESEARCH LABORATORY INTERIM REPORT N-9 1976). THE PRESENTATION OF THE PROCEDURES INCLUDES A HISTORY OF NOISE IMPACT MEASURES, A BACKGROUND OF THE DEVELOPMENT OF NOISE CONTOURS, AND TABLES FOR FINDING THE NOISE IMPACT. A COMPLETE DESCRIPTIVE EXAMPLE OF THE USE OF THE PROCEDURES IS PRESENTED AS AN AID TO THE READER. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A031 865 13/2 20/1 6/19
AEROSPACE MEDICAL RESEARCH LAB WRIGHT-PATTERSON AFB OHIO

USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME I. ORGANIZATION, CONTENT AND APPLICATION, (U)

JUN 75 92P COLE, JOHN N. ;
REPT. NO. AMRL-TR-75-50-VOL-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 3, AD-A029 577.

DESCRIPTORS: *NOISE POLLUTION, *BIOACOUSTICS, *AIRCRAFT NOISE, HANDBOOKS, GROUND CREWS, HEARING, FLIGHT CREWS, NOISE(SOUND), GROUND SUPPORT EQUIPMENT, SPEECH RECOGNITION, PERFORMANCE(HUMAN), MEASUREMENT, EAR PROTECTORS, DATA PROCESSING, AIR FORCE PERSONNEL, ACOUSTIC DATA, EXPOSURE(PHYSIOLOGY), SOUND PRESSURE (U)
IDENTIFIERS: *BIOENVIRONMENTAL NOISE (U)

USAF AIRCRAFT, AUXILIARY EQUIPMENT, GROUND POWER UNITS AND OTHER AEROSPACE SYSTEMS OFTENTIMES PRODUCE ACOUSTIC ENVIRONMENTS WHICH ARE POTENTIALLY HAZARDOUS, INTERFERE WITH VOICE COMMUNICATION AND TASK PERFORMANCE, OR ARE ANNOYING. SUCH ENVIRONMENTS CAN ADVERSELY AFFECT FLIGHT CREWS, AIRCRAFT PASSENGERS, GROUND CREWS, OTHER FLIGHT LINE PERSONNEL, AND AIRBASE COMMUNITIES. THE AEROSPACE MEDICAL RESEARCH LABORATORY HAS PREPARED A MULTI-VOLUME HANDBOOK (125+ VOLUMES) WHICH PROVIDES DATA DESCRIBING TYPICAL ACOUSTIC ENVIRONMENTS PRODUCED BY SPECIFIC, MAJOR USAF SYSTEMS. THIS PARTICULAR VOLUME (VOL. 1) DESCRIBES THE GENERAL ORGANIZATION, SCOPE, CONTENT AND APPLICATION OF THE ENTIRE MULTIVOLUME HANDBOOK AND COVERS EQUIPMENT AND PROCEDURES FOR DATA ACQUISITION AND ANALYSIS, PHYSICAL ACOUSTIC AND PSYCHOACOUSTIC MEASURES OF NOISE, AFR 161-35 NOISE EXPOSURE LIMITS, EAR PROTECTORS COMMONLY USED BY USAF PERSONNEL, NORMALIZATION AND EXTRAPOLATION OF FAR-FIELD NOISE DATA, AND FORMAT AND EXAMPLES OF HANDBOOK DATA. THIS VOLUME ALSO DESCRIBES THE HANDBOOK INDEX, THE DISTRIBUTION OF THE HANDBOOK, AND CONTACTS FOR ADDITIONAL INFORMATION. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A031 877 21/5 20/1 13/2 1/3
BOEING COMMERCIAL AIRPLANE CO SEATTLE WASH

727/JT8D JET AND FAN NOISE FLIGHT EFFECTS STUDY. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
AUG 76 295P MUNOZ,LUIS F. ;
REPT. NO. D6-44145
CONTRACT: DOT-FA71WA-2637
MONITOR: FAA-RD 76-110

UNCLASSIFIED REPORT

DESCRIPTORS: *JET ENGINE NOISE, *TURBOFAN ENGINES, JET TRANSPORT PLANES, CONFIGURATIONS, EJECTORS, SUPPRESSION, FANS, JETS, AXIAL FLOW FANS, JET ENGINE NACELLES, INSTALLATION, EXTERNAL STORES, STATIC TESTS, FLIGHT TESTING (U)
IDENTIFIERS: BOEING 727-100 AIRCRAFT, BOEING 727 AIRCRAFT, JT-8D AIRCRAFT, EJECTOR SUPPRESSORS, FLIGHT NOISE (U)

A STUDY WAS CONDUCTED TO DEFINE SPECIFIC GROUND-TO-FLIGHT EFFECTS ON THE NOISE OF A LOW-BYPASS-RATIO ENGINE. THE ANALYSIS WAS BASED ON ACOUSTIC DATA RECORDED DURING THE FAA-SPONSORED 727 NOISE RETROFIT FEASIBILITY PROGRAM. TWO CONFIGURATIONS, A BASELINE AND AN EJECTOR SUPPRESSOR NACELLE, WERE INCLUDED IN THE STUDY. NOISE FLIGHT EFFECTS WERE OBTAINED BY COMPARING JT8D GROUND STATIC AND 727/JT8D FLIGHT ACOUSTIC DATA. PROCEDURES ARE DEFINED FOR NORMALIZING STATIC AND FLIGHT DATA TO COMMON CONDITIONS. THE ANALYSIS CONSIDERED BOTH JET AND FAN NOISE CHARACTERISTICS FOR FIVE ENGINE POWER SETTINGS. THE RESULTS OF THIS STUDY WILL PROVIDE A GUIDELINE FOR ESTABLISHING FLIGHT EFFECTS TECHNOLOGY. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A032 028 20/1 1/3
MAN-ACOUSTICS AND NOISE INC SEATTLE WASH

NOISE CERTIFICATION CONSIDERATIONS FOR HELICOPTERS BASED ON LABORATORY INVESTIGATIONS. (U)

DESCRIPTIVE NOTE: FINAL REPT.
JUL 76 108P
REPT. NO. MAN-1014
CONTRACT: DOT-FA74WAI-490
MONITOR: FAA-RD 76-116

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED NOV 75, AD-A018 036.

DESCRIPTORS: *NOISE POLLUTION, *HELICOPTERS, *SHORT TAKEOFF AIRCRAFT, *PSYCHOPHYSICS, AIRCRAFT NOISE, ACOUSTIC MEASUREMENT, HUMAN FACTORS ENGINEERING, INTENSITY, EXPOSURE(GENERAL), STATISTICAL PROCESSES, SIMULATION, MODELS, ANALYSIS OF VARIANCE, ENVIRONMENTAL PROTECTION, EXPERIMENTAL DATA, COMMUNITY RELATIONS, LABORATORY TESTS (U)
IDENTIFIERS: ANNOYANCE, NOISE LEVELS, CERTIFICATION (U)

THIS IS THE SECOND PART OF A PROGRAM CONCERNING NOISE CERTIFICATION FOR V/STOL AND HELICOPTER AIRCRAFT. ASPECTS CONSIDERED WERE: AN ENGINEERING CALCULATION PROCEDURE WHICH VALIDLY AND RELIABLY REFLECTS ANNOYANCE TO HELICOPTER OPERATIONS; ESTIMATES OF NOISE EXPOSURE LEVELS WHICH COULD BE COMPATIBLE WITH HUMAN ACTIVITIES IN AREAS SURROUNDING HELIPORTS; NOISE EXPOSURE MODELING FOR HELICOPTER NOISE; CERTIFICATION MEASUREMENT APPROACHES FOR HELICOPTER NOISE CERTIFICATION. THE BASICS OF THE PROGRAM INVOLVED HUMAN RESPONSE EVALUATIONS OF CONVENTIONAL TAKEOFF AND LANDING (CTOL) AIRCRAFT NOISE, SIMULATIONS OF HELICOPTER NOISE EMPHASIZING 'SLAP' OR PULSATING NOISE EFFECTS, AND RECORDINGS OF A WIDE VARIETY OF HELICOPTER OPERATIONS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A032 478 20/1
LOCKHEED-GEORGIA CO MARIETTA

THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME I. SUMMARY. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. 6 NOV 72-6 NOV 75,
SEP 76 140P PLUMBLEE,HARRY E. , JR;
REPT. NO. LG76ER0133-VOL-1
CONTRACT: F33615-73-C-2032
PROJ: AF-3066
TASK: 306614
MONITOR: AFAPL TR-76-65-VOL-1

UNCLASSIFIED REPORT

DESCRIPTORS: *JET PLANE NOISE, *SUPERSONIC AIRCRAFT, NOISE GENERATORS, NOISE POLLUTION, SOUND TRANSMISSION, AERODYNAMIC NOISE, MATHEMATICAL MODELS, THEORY, TURBULENCE, FAR FIELD, MEASUREMENT, EXPERIMENTAL DATA, NUMERICAL METHODS AND PROCEDURES (U)
IDENTIFIERS: TURBULENT MIXING (U)

THIS VOLUME CONTAINS A SUMMARY OF ALL THE WORK ACCOMPLISHED IN A DETAILED INVESTIGATION OF THE NOISE CHARACTERISTICS OF SUPERSONIC JET AIRCRAFT, AS WELL AS A SUMMARY OF ITEMS IN AN EXPLORATORY PROGRAM. THERE ARE THREE MAIN SECTIONS. THE FIRST SUMMARIZES THE PROBLEMS WITH EXISTING THEORIES AT THE TIME THE CONTRACT WAS INITIATED. THE SECOND OUTLINES THE CRITERIA FOR A UNIFIED SELF-CONSISTENT THEORY OF AERODYNAMIC NOISE GENERATION, AND PRESENTS, A BRIEF DERIVATION OF LILLEY'S EQUATION WHICH IS THE BASIS FOR THE THEORETICAL STUDIES IN JET NOISE GENERATION AND RADIATION. THE THIRD SECTION SUMMARIZES THE WORK ACCOMPLISHED. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A032 881 20/1 21/5
LOCKHEED-GEORGIA CO MARIETTA

THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME II. STUDIES OF JET NOISE, TURBULENCE STRUCTURE AND LASER VELOCIMETRY. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. 6 NOV 72-6 NOV 75,
JUN 76 472P PLUMBLEE,HARRY E. , JR.;
BURRIN,ROBERT H. ;LAU,JARK C. ;MORFEY,
CHRISTOPHER L. ;MORRIS,PHILIP J. ;
REPT. NO. LG76ER0133-VOL-2
CONTRACT: F33615-73-C-2032
PROJ: 3066
TASK: 14
MONITOR: AFAPL TR-76-65-VOL-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 3, AD-A032 882.

DESCRIPTORS: *JET ENGINE NOISE, *JET ENGINE EXHAUST, SUPERSONIC FLOW, JET FLOW, NOISE(SOUND), SHOCK, TURBULENCE, TURBULENT DIFFUSION, SOURCES, EXHAUST NOZZLES, JET MIXING FLOW, RADIATED NOISE, FLOW FIELDS, FAR FIELD, MACH NUMBER, HOT WIRE ANEMOMETERS, LASER VELOCIMETERS, NOISE REDUCTION, NUMERICAL ANALYSIS, THEORY, TEST METHODS (U)
IDENTIFIERS: LILLEY THEORY, PE62203F, WUAFAPL30661408 (U)

THIS VOLUME DISCUSSES (1) TURBULENT MIXING NOISE TESTS AND OBSERVATIONS RELATIVE TO EFFECTS OF TEMPERATURE AND MACH NUMBER ON INTENSITY, DIRECTIVITY, AND SPECTRA; (2) NUMERICAL SOLUTIONS OF THE LILLEY THEORY FOR SOUND RADIATED FROM POINT SOURCES SIMULATING SMALL-SCALE TURBULENCE NOISE SOURCES, AND COMPARISONS OF THESE SOLUTIONS WITH EXPERIMENTAL DATA RELATING TO TEMPERATURE AND VELOCITY EFFECTS ON DIRECTIVITY AND SPECTRA; (3) THE THEORY DESCRIBING THE DEVELOPMENT OF THE LARGE-SCALE COHERENT MOTION OF THE JET STRUCTURE AND THE FAR-FIELD NOISE RADIATED FROM THIS TURBULENCE; (4) A DETAILED DISCUSSION AND INTERPRETATION OF THE JET TURBULENCE AND MEAN VELOCITY DATA; AND (5) A COMPREHENSIVE DESCRIPTION OF THE SHOCK-ASSOCIATED NOISE TESTS, A PRELIMINARY DESCRIPTION OF THE BROADBAND SHOCK-ASSOCIATED NOISE MODEL. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A032 882 20/1 21/5
LOCKHEED-GEORGIA CO MARIETTA

THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME III. TURBULENT MIXING NOISE DATA. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. 6 NOV 72-6 NOV 75,
JUN 76 470P TANNA,H. K. ;DEAN,PETER D. ;BURRIN,ROBERT H. ;
REPT. NO. LG76ER0133-VOL-3
CONTRACT: F33615-73-C-2032
PROJ: 3066
TASK: 14
MONITOR: AFAPL TR-76-65-VOL-3

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 4, AD-A032 883.

DESCRIPTORS: *JET ENGINE NOISE, *JET ENGINE EXHAUST, *TURBULENT DIFFUSION, CONVERGENT DIVERGENT NOZZLES, EXHAUST NOZZLES, RADIATED NOISE, HIGH PRESSURE, HIGH TEMPERATURE, SUPERSONIC FLOW, JET MIXING FLOW, NOISE(SOUND), TURBULENCE, FAR FIELD, SPECTRUM ANALYSIS, MACH NUMBER, ANECHOIC CHAMBERS, TEST METHODS, TABLES(DATA) (U)
IDENTIFIERS: 1/3 OCTANE ANALYSIS, PE62203F, WUAFAPL30661408 (U)

THE CHARACTERISTICS, BOTH SPECTRAL AND DIRECTIVITY, OF THE SOUND FIELD OF SUPERSONIC SHOCK-FREE JETS ARE STUDIED BY MEASURING THE TURBULENT MIXING NOISE IN THE FAR FIELD FROM FOUR TWO-INCH DIAMETER NOZZLES, NAMELY A CONVERGENT NOZZLE FOR PRESSURE RATIOS UP TO CRITICAL AND THREE CONVERGENT-DIVERGENT NOZZLES HAVING NOMINAL DESIGN MACH NUMBERS OF 1.4, 1.7, AND 2.0, RESPECTIVELY. THE MEASUREMENTS WERE CONDUCTED IN A FREE-FIELD ENVIRONMENT. THE RESULTS FROM 75 JET EXIT CONDITIONS ARE PRESENTED IN A SYSTEMATIC MANNER IN THE FORM OF TABULATED ONE-THIRD OCTAVE SPECTRA. THE TEST PROGRAM WAS CAREFULLY PLANNED IN ORDER TO OBTAIN RESULTS (I) AT CONSTANT JET EFFLUX TEMPERATURE WITH VARYING JET VELOCITY, AND CONVERSELY (II) AT CONSTANT EXIT VELOCITY WHILE VARYING JET EFFLUX TEMPERATURE. THE EFFECTS OF JET VELOCITY AND EXHAUST TEMPERATURE ON TURBULENT MIXING NOISE CAN THEREFORE BE ASSESSED INDEPENDENTLY. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A032 883 20/1 21/5
LOCKHEED-GEORGIA CO MARIETTA

THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME IV. SHOCK-ASSOCIATED NOISE DATA. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. 6 NOV 72-6 NOV 75,
JUN 76 416P TANNA,H. K. ;DEAN,PETER D. ;BURRIN,ROBERT H. ;
REPT. NO. LG76ER0133-VOL-4
CONTRACT: F33615-73-C-2032
PROJ: 3066
TASK: 14
MONITOR: AFAPL TR-76-65-VOL-4

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-A032 881.

DESCRIPTORS: *JET ENGINE NOISE, *JET ENGINE EXHAUST, EXHAUST NOZZLES, NOISE REDUCTION, NOISE(SOUND), SHOCK, BROADBAND, SPECTRUM ANALYSIS, NARROWBAND, GRAPHS, TEST METHODS, DATA REDUCTION (U)
IDENTIFIERS: UNDEREXPANDED JET FLOW, SCREECH SUPPRESSION, PE62203F, WUAFAPL30661408 (U)

THE CHARACTERISTICS OF THE SOUND FIELD OF SHOCK-CONTAINING UNDER-EXPANDED JETS ARE STUDIED BY MEASURING THE NOISE FROM A TWO-INCH DIAMETER CONVERGENT NOZZLE OVER AN EXTENSIVE ENVELOPE OF SUPERCRITICAL JET OPERATING CONDITIONS. THE MEASUREMENTS, WHICH ARE ACCURATE AND COMPREHENSIVE, WERE CONDUCTED IN THE LOCKHEED ANECHOIC FACILITY. THE RESULTS ARE PRESENTED IN THIS VOLUME IN A SYSTEMATIC MANNER IN THE FORM OF NARROWBAND SPECTRA. THE DETAILS PERTINENT TO THE EXPERIMENTAL PROGRAM AND THE DATA PRESENTATION FORMAT ARE SUMMARIZED BELOW. THE TOTAL NOISE SPECTRUM FROM AN INCORRECTLY EXPANDED JET FLOW CONTAINS DISCRETE COMPONENTS (OR SCREECH) IN ADDITION TO THE BASIC TURBULENT MIXING NOISE AND THE BROADBAND SHOCK-ASSOCIATED NOISE. IN ORDER TO STUDY THE TRENDS AND DEPENDENCIES OF THE BROADBAND COMPONENT ACCURATELY, IT IS VITAL TO KEEP THE CONTAMINATION BY SCREECH TO A MINIMUM IN THE EXPERIMENTAL PROGRAM. IN THE PRESENT EXPERIMENTS, SCREECH SUPPRESSION WAS SUCCESSFULLY ACHIEVED BY WRAPPING ALL SURFACES SURROUNDING THE NOZZLE EXIT WITH SOUND ABSORBING MATERIAL, (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A033 188 1/3 20/1 17/1
LOCKHEED-GEORGIA CO MARIETTA

ACOUSTIC EMISSION STRUCTURE-BORNE NOISE MEASUREMENTS ON AIRCRAFT DURING FLIGHT. (U)

DESCRIPTIVE NOTE: FINAL REPT. 20 MAY-20 NOV 74,
MAY 76 91P LEWIS,W. H. , JR.;BAILEY,
C. D. ;PLESS,W. M. ;
REPT. NO. LG74ER0147
CONTRACT: F33657-74-C-0588
PROJ: 7381
TASK: 07
MONITOR: AFML TR-75-185

UNCLASSIFIED REPORT

DESCRIPTORS: *TRANSPORT AIRCRAFT, *ACOUSTIC EMISSIONS, *STRUCTURAL RESPONSE, *AIRCRAFT NOISE, FLIGHT TESTING, PIEZOELECTRIC TRANSDUCERS, PREAMPLIFIERS, MEASUREMENT, SIGNAL TO NOISE RATIO, AIR FLOW, JET ENGINE NOISE, FLIGHT CONTROL SYSTEMS, MINICOMPUTERS, SIGNAL PROCESSING, CRACK PROPAGATION, SWEEP FREQUENCY TECHNIQUES, SPECTRUM ANALYZERS, NONDESTRUCTIVE TESTING, INSPECTION (U)
IDENTIFIERS: C-5A AIRCRAFT, PE62102F (U)

THIS JOINT PROGRAM BETWEEN THE LOCKHEED-GEORGIA COMPANY AND THE AIR FORCE MATERIALS LABORATORY WAS CONCERNED WITH MEASURING THE STRUCTURE-BORNE NOISE BACKGROUND IN A LARGE AIRCRAFT DURING FOUR TEST FLIGHTS TO DETERMINE THE FEASIBILITY FROM A SIGNAL-TO-NOISE STANDPOINT OF USING ACOUSTIC EMISSION TECHNIQUES TO MONITOR STRUCTURE DURING FLIGHT. MEASUREMENTS WERE MADE IN THE FREQUENCY RANGE FROM 0.1 MHZ TO 2.0 MHZ USING OFF-THE-SHELF ACOUSTIC EMISSION TRANSDUCER AND 40-DB PREAMPLIFIERS IN CONJUNCTION WITH A LOCKHEED-DESIGNED SPECTRUM ANALYZER AND A PULSE CODE MODULATION DATA SYSTEM. CALIBRATION AND FLIGHT DATA WERE RECORDED ON THE FLIGHT INSTRUMENTATION MAGNETIC TAPE RECORDER. TRANSDUCER AND PREAMPLIFIERS WERE INSTALLED AT NINE LOCATIONS ON THE AIRCRAFT INCLUDING THE WING, PYLONG, MAIN LANDING GEAR WELL AND THE EMPENNAGE. A COMMERCIAL FLAW LOCATOR SYSTEM WAS ALSO INSTALLED TO MONITOR THE CENTER WING LOWER SURFACE DURING THE FOUR FLIGHTS. THE RESULTS SHOWED THAT STRUCTURE-BORNE NOISE CAN VARY CONSIDERABLY OVER THE AIRCRAFT STRUCTURE AND THAT A SUITABLE ACOUSTIC EMISSION SIGNAL-TO-NOISE RATIO CAN BE ACHIEVED AT MOST LOCATIONS WITHIN THE FREQUENCY RANGE 0.5 MHZ, (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A033 531 1/3 21/5 6/19 20/1
AEROSPACE MEDICAL RESEARCH LAB WRIGHT-PATTERSON AFB OHIO

USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 65. T-37B AIRCRAFT, NEAR AND FAR-FIELD NOISE. (U)

NOV 75 79P POWELL,ROBERT G. ;
REPT. NO. AMRL-TR-75-50-VOL-65
PROJ: AF-7231
TASK: 723104

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 63, AD-A029 630.

DESCRIPTORS: *JET ENGINE NOISE, *BIOACOUSTICS, *NOISE POLLUTION, TURBOJET ENGINES, AIRCRAFT NOISE, LANDING FIELDS, ACOUSTIC MEASUREMENT, NEAR FIELD, FAR FIELD, JET TRAINING PLANES (U)
IDENTIFIERS: T-37 AIRCRAFT, T-37B AIRCRAFT, J69-T-25 ENGINES, J-69 ENGINES, BIOENVIRONMENTAL NOISE, *NOISE EXPOSURE (U)

THE USAF T-37B AIRCRAFT IS A FLIGHT TRAINER POWERED BY TWO J69-T-25 TURBOJET ENGINES. THIS REPORT PROVIDES MEASURED AND EXTRAPOLATED DATA DEFINING THE BIOACOUSTIC ENVIRONMENTS PRODUCED BY THIS AIRCRAFT OPERATING ON A CONCRETE RUNUP AREA FOR THREE POWER CONDITIONS. NEAR-FIELD DATA ARE REPORTED FOR FOUR LOCATIONS IN A WIDE VARIETY OF PHYSICAL AND PSYCHOACOUSTIC MEASURES: OVERALL AND BAND SOUND PRESSURE LEVELS, C-WEIGHTED AND A-WEIGHTED SOUND LEVELS, PREFERRED SPEECH INTERFERENCE LEVEL, PERCEIVED NOISE LEVEL, AND LIMITING TIMES FOR TOTAL DAILY EXPOSURE OF PERSONNEL WITH AND WITHOUT STANDARD AIR FORCE EAR PROTECTORS. FAR-FIELD DATA MEASURED AT 19 LOCATIONS ARE NORMALIZED TO STANDARD METEOROLOGICAL CONDITIONS AND EXTRAPOLATED FROM 75-8000 METERS TO DERIVE SETS OF EQUAL-VALUE CONTOURS FOR THESE SAME SEVEN ACOUSTIC MEASURES AS FUNCTIONS OF ANGLE AND DISTANCE FROM THE SOURCE. REFER TO VOLUME 1 OF THIS HANDBOOK, 'USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK, VOL 1: ORGANIZATION, CONTENT AND APPLICATION', AMRL-TR-75-50(1) 1975, FOR DISCUSSION OF THE OBJECTIVE AND DESIGN OF THE HANDBOOK, THE TYPES OF DATA PRESENTED, MEASUREMENT PROCEDURES, INSTRUMENTATION, DATA PROCESSING, DEFINITIONS OF QUANTITIES, SYMBOLS, EQUATIONS, APPLICATIONS, (U)

AD-A046 800 DEFENSE DOCUMENTATION CENTER ALEXANDRIA VA F/G 5/2
ENVIRONMENTAL POLLUTION: NOISE POLLUTION-AIRPLANE NOISE.(U)
NOV 77

UNCLASSIFIED DDC/BIB-77/11 NL

4 OF 5
AD A046 800



DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A033 641 1/3 5/5
AEROSPACE MEDICAL RESEARCH LAB WRIGHT-PATTERSON AFB OHIO

USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 58. U-10B IN-FLIGHT CREW NOISE, (U)

NOV 75 10P ROSE,JUSTUS F. , JR.;
FARINACCI,NICK A. ;
REPT. NO. AMRL-TR-75-50-VOL-58
PROJ: AF-7231
TASK: 723104

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 57, AD-A029 626.

DESCRIPTORS: *SHORT TAKEOFF AIRCRAFT, *ACOUSTIC MEASUREMENT, *PSYCHOACOUSTICS, *AIRCRAFT NOISE, FLIGHT CREWS, AIR FORCE OPERATIONS, COUNTERINSURGENCY, FLIGHT ENVELOPE, BIOACOUSTICS, SOUND PRESSURE, SPEECH RECOGNITION, EAR PROTECTORS (U)
IDENTIFIERS: U-10B AIRCRAFT, U-10 AIRCRAFT (U)

THE U-10B IS A USAF SHORT-RANGE, LIGHT CARGO STOL AIRCRAFT USED IN COUNTER-INSURGENCY OPERATIONS. THE REPORT PROVIDES MEASURED DATA DEFINING THE BIOACOUSTIC ENVIRONMENTS AT FLIGHT CREW LOCATIONS INSIDE THIS AIRCRAFT DURING NORMAL FLIGHT OPERATIONS. DATA ARE REPORTED FOR ONE LOCATION IN A WIDE VARIETY OF PHYSICAL AND PSYCHOACOUSTIC MEASURES: OVERALL AND BAND SOUND PRESSURE LEVELS, C-WEIGHTED AND A-WEIGHTED SOUND LEVELS, PREFERRED SPEECH INTERFERENCE LEVEL, PERCEIVED NOISE LEVEL, AND LIMITING TIMES FOR TOTAL DAILY EXPOSURE OF PERSONNEL WITH AND WITHOUT STANDARD AIR FORCE EAR PROTECTORS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A033 642 1/3 5/5
AEROSPACE MEDICAL RESEARCH LAB WRIGHT-PATTERSON AFB OHIO

USAF BIOENVIRONMENTAL NOISE DATA. VOLUME 59. QU-22B IN-FLIGHT CREW NOISE, (U)

NOV 75 15P ROSE, JUSTUS F. , JR.;
FARINACCI, NICK A. ;
REPT. NO. AMRL-TR-75-50-VOL-59
PROJ: AF-7231
TASK: 723104

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 58, AD-A033 641.

DESCRIPTORS: *UTILITY AIRCRAFT, *ACOUSTIC MEASUREMENT, *PSYCHOACOUSTICS, *AIRCRAFT NOISE, FLIGHT CREWS, AIR FORCE OPERATIONS, SURVEILLANCE, FLIGHT ENVELOPE, BIOACOUSTICS, SOUND PRESSURE, SPEECH RECOGNITION, EAR PROTECTORS, DRONES (U)
IDENTIFIERS: QU-22B DRONES, U-22 AIRCRAFT (U)

THE Q-22B IS A USAF LIGHT UTILITY AIRCRAFT USED FOR INFILTRATION SURVEILLANCE. THE REPORT PROVIDES MEASURED DATA DEFINING THE BIOACOUSTIC ENVIRONMENTS AT FLIGHT CREW LOCATIONS INSIDE THIS AIRCRAFT DURING NORMAL FLIGHT OPERATIONS. DATA ARE REPORTED FOR ONE LOCATION IN A WIDE VARIETY OF PHYSICAL AND PSYCHOACOUSTIC MEASURES: OVERALL AND BAND SOUND PRESSURE LEVELS, C-WEIGHTED AND A-WEIGHTED SOUND LEVELS, PREFERRED SPEECH INTERFERENCE LEVEL, PERCEIVED NOISE LEVEL, AND LIMITING TIMES FOR TOTAL DAILY EXPOSURE OF PERSONNEL WITH AND WITHOUT STANDARD AIR FORCE EAR PROTECTORS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A033 643 1/3 5/5
AEROSPACE MEDICAL RESEARCH LAB WRIGHT-PATTERSON AFB OHIO

USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 64. B-52G AIRCRAFT, NEAR AND FAR-FIELD NOISE, (U)

NOV 75 133P POWELL,ROBERT G. ;
REPT. NO. AMRL-TR-75-50-VOL-64
PROJ: AF-7231
TASK: 723104

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 63, AD-A029 630.

DESCRIPTORS: *BOMBER AIRCRAFT, *ACOUSTIC MEASUREMENT, *PSYCHOACOUSTICS, *AIRCRAFT NOISE, FLIGHT CREWS, STRATEGIC BOMBING, TURBOJET ENGINES, FLIGHT ENVELOPE, BIOACOUSTICS, SOUND PRESSURE, SPEECH RECOGNITION, AIR FORCE OPERATIONS, EAR PROTECTORS (U)
IDENTIFIERS: B-52G AIRCRAFT, B-52 AIRCRAFT (U)

THE USAF B-52G AIRCRAFT IS A STRATEGIC BOMBER POWERED BY EIGHT J57-P-43WA TURBOJET ENGINES. THE REPORT PROVIDES MEASURED AND EXTRAPOLATED DATA DEFINING THE BIOACOUSTIC ENVIRONMENTS PRODUCED BY THIS AIRCRAFT OPERATING ON A CONCRETE RUNUP PAD FOR FIVE ENGINE/POWER CONFIGURATIONS. NEAR-FIELD DATA ARE REPORTED FOR EIGHT LOCATIONS IN A WIDE VARIETY OF PHYSICAL AND PSYCHOACOUSTIC MEASURES: OVERALL AND BAND SOUND PRESSURE LEVELS, C-WEIGHTED AND A-WEIGHTED SOUND LEVELS, PREFERRED SPEECH INTERFERENCE LEVEL, PERCEIVED NOISE LEVEL, AND LIMITING TIMES FOR TOTAL DAILY EXPOSURE OF PERSONNEL WITH AND WITHOUT STANDARD AIR FORCE EAR PROTECTORS. FAR-FIELD DATA MEASURED AT 19 LOCATIONS ARE NORMALIZED TO STANDARD METEOROLOGICAL CONDITIONS AND EXTRAPOLATED FROM 75-8000 METERS TO DERIVE SETS OF EQUAL-VALUE CONTOURS FOR THESE SAME SEVEN ACOUSTIC MEASURES AS FUNCTIONS OF ANGLE AND DISTANCE FROM THE SOURCE. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A035 062 20/1
MITRE CORP MCLEAN VA

FAA INTEGRATED NOISE MODEL USER'S GUIDE,
(U)

MAR 76 105P MANSBACH,PETER A. ;MAGINNIS,
FRANCIS X. ;
REPT. NO. MTR-7184
CONTRACT: DOT-FA69NS-162
MONITOR: FAA-EQ 76-2

UNCLASSIFIED REPORT

DESCRIPTORS: *AIRCRAFT NOISE, *COMPUTER PROGRAMS,
MODELS, AIRPORTS, COMPUTERS, RUNWAYS,
PLOTTERS, ACOUSTICS, AIR TRAFFIC, FORMATS,
COST ESTIMATES, USER NEEDS, INTEGRATED SYSTEMS (U)
IDENTIFIERS: FEDERAL AVIATION ADMINISTRATION,
USERS GUIDE, SOUND LEVEL (U)

THE FAA INTEGRATED NOISE MODEL (INM) PROVIDES A CONCEPTUALLY SIMPLE METHOD FOR CHARACTERIZING AIRCRAFT NOISE NEAR AIRPORTS. IT INCLUDES A DETERMINATION OF THE TOTAL TIME THAT THE SOUND LEVEL EXCEEDS SIX DIFFERENT THRESHOLDS, AND ALSO THE EQUIVALENT A-WEIGHTED SOUND LEVEL, L SUB EQ, AND THE DAY-NIGHT AVERAGE SOUND LEVEL, L SUB DN, AT A NUMBER OF POINTS SURROUNDING A PARTICULAR AIRPORT. EVENING AND NIGHTTIME EXPOSURES ARE BROKEN OUT SEPARATELY. THUS, SEVERAL METHODOLOGIES ARE INTEGRATED INTO A SINGLE MODEL WHICH PROVIDES A VERY COMPLETE PICTURE OF THE NOISE ENVIRONMENT. THE COMPUTER PROGRAM INMPROG IS AVAILABLE TO CALCULATE ALL OF THE ABOVE INFORMATION AND TO PRESENT IT IN TABULAR FORM. PLOTTER OUTPUT IS ALSO GENERATED, FOR CONTOURS OF EQUAL EXPOSURES TO LEVELS ABOVE 85 DBA. EQUAL L SUB DN CONTOURS MAY BE PRODUCED INSTEAD, AT THE USER'S OPTION. THIS MANUAL IS INTENDED TO GUIDE THE USER OF THE MODEL THROUGH THE PREPARATION OF DATA REQUIRED BY THIS PROGRAM. A DESCRIPTION OF THE AIRPORT AND ITS OPERATIONS MUST BE ASSEMBLED ONTO DATA FORMS. A SEPARATE CHAPTER SPECIFIES THE PUNCHED CARD FORMATS, SO THAT THE PUNCHING OF CARDS IS DISTINCT FROM THE COLLECTION OF DATA. TECHNICAL APPENDICES PROVIDE THE INFORMATION REQUIRED FOR A COMPUTER CENTER TO BRING UP AND RUN THE PROGRAM. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A036 224 13/2 6/19
AEROSPACE MEDICAL RESEARCH LAB WRIGHT-PATTERSON AFB OHIO

DEVELOPMENT OF A UNIFORM APPROACH TO CHARACTERIZE NOISE IMPACT ON PEOPLE. (U)

DESCRIPTIVE NOTE: JOURNAL REPRINT,
76 10P VON GIERKE,HENNING E. ;
REPT. NO. AMRL-TR-75-40
PROJ: 7231
TASK: 03

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN AVIATION, SPACE AND ENVIRONMENTAL MEDICINE, P45-53 JAN 76.
SUPPLEMENTARY NOTE: PRESENTED AT ANNUAL AEROSPACE MEDICAL ASSOCIATION MEETING (46TH) HELD IN SAN FRANCISCO, CALIF., 27 APR-2 MAY 75.

DESCRIPTORS: *NOISE POLLUTION, *AIRCRAFT NOISE, POLLUTION ABATEMENT, NOISE(SOUND), ENVIRONMENTAL MANAGEMENT, PUBLIC HEALTH, PLANNING, COSTS, REPRINTS (U)
IDENTIFIERS: PE62202F (U)

EFFECTIVE PLANNING REQUIRES VALID CHARACTERIZATION AND PREDICTION OF THE NOISE ENVIRONMENT, AN UNDERSTANDING OF THE ORIGIN OF THE NOISE AND THE CONTRIBUTION OF VARIOUS SOURCES, AND THE LEGAL POWER TO CONTROL NOISE GENERATION AND ENFORCE LANDING-USE PLANNING. AS A MATTER OF FACT, SOME OF THE TREMENDOUS PROGRESS MADE IN PRODUCING THE NEW, QUIETER GENERATION COMMERICAL JET AIRCRAFT, SUCH AS THE DC10 OR L1011, IS ALMOST IN VAIN UNLESS PROPER LAND-USE PLANNING AROUND AIRPORTS PREVENTS FURTHER ENCROACHMENT OF RESIDENTIAL AREAS ON THE AIRPORT. A NOISE CONTROL PROGRAM WHICH DOES NOT ADDRESS ALL PHASES OF THE TOTAL SYSTEM-NOISE SOURCES, TRANSMISSION PATH TO THE RECEIVER, AND THE RECEIVER OF THE NOISE; I.E., THE COMMUNITIES AND THE PEOPLE IN THEM-MUST REMAIN EFFECTIVE. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A036 723 1/3 1/2
MITRE CORP MCLEAN VA METREK DIV

FAA INTEGRATED NOISE MODEL DATA BASE, (U)

AUG 76 102P MANSBACH,PETER A. ;
REPT. NO. MTR-7289
CONTRACT: DOT-FA69NS-162
MONITOR: FAA-EQ 76-6

UNCLASSIFIED REPORT

DESCRIPTORS: *AIRCRAFT NOISE, *CIVIL AVIATION, AIRPORTS, DATA BASES, COMPUTER PROGRAMS, PASSENGER AIRCRAFT, NOISE POLLUTION, TABLES(DATA), MATHEMATICAL MODELS (U)

THE FAA INTEGRATED NOISE MODEL COMPUTER PROGRAM INMPROG HAS BEEN MADE AVAILABLE TO THE PUBLIC FOR COMPUTING A VARIETY OF NOISE INDICES IN THE VICINITY OF AIRPORTS. ONE COMPONENT OF THIS PROGRAM PACKAGE IS A DATA LIBRARY WHICH PROVIDES BOTH ACOUSTIC AND OPERATIONAL DATA FOR CERTAIN STANDARD AIRCRAFT TYPES AND FLIGHT PROCEDURES. THIS PAPER PRESENTS THE DATA USED TO CONSTRUCT THE SUPPLIED PROGRAM LIBRARY. IT THUS PROVIDES THE INFORMATION NEEDED TO REPRODUCE A PARTICULAR ANALYSIS. FURTHER, IT PROVIDES A NECESSARY REFERENCE POINT FOR THE USER WHO SPECIFIES HIS OWN OPERATIONAL PROCEDURES. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A038 154 20/1 21/5 13/2
INSTITUTE OF LABS JAMAICA PLAIN MASS*

COMBUSTION NOISE INVESTIGATION. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
FEB 77 202P MATHEWS,D. C. ;REKOS,N.
F. , JR.;NAGEL,R. T. ;
REPT. NO. PWA-5478
CONTRACT: DOT-FA75WA-3663
MONITOR: FAA-RD 77-3

UNCLASSIFIED REPORT

DESCRIPTORS: *AIRCRAFT ENGINE NOISE, *COMBUSTION, *TURBOFAN ENGINES, PREDICTIONS, EXPERIMENTAL DATA, ACOUSTIC ATTENUATION, COMBUSTORS, DUCTS, COUPLINGS, BURNERS, FUEL NOZZLES, TRANSMISSION LOSS, NOISE REDUCTION, BACKGROUND NOISE, MATHEMATICAL MODELS, OPTICAL ANALYSIS, TEST FACILITIES (U)
IDENTIFIERS: JT-8D ENGINES, JT-9D7 ENGINES, JT-9D ENGINES, JT-10 ENGINES (U)

IMPROVED METHODS FOR PREDICTING BOTH DIRECT AND INDIRECT COMBUSTION NOISE FROM AIRCRAFT ENGINES ARE DEVELOPED AND EXPERIMENTALLY EVALUATED BY CONDUCTING RIG EXPERIMENTS AND BY COMPARING WITH DATA FROM SEVERAL FULL SCALE ENGINES. COMPARISON OF PREDICTIONS WITH FULL SCALE ENGINE DATA INDICATED THAT DIRECT COMBUSTION NOISE IS THE DOMINANT SOURCE FOR THE P AND WA ENGINES INVESTIGATED. THE DIRECT COMBUSTION NOISE PREDICTION SYSTEM INCLUDES EXPRESSIONS FOR ACOUSTIC POWER LEVEL, PEAK FREQUENCY AND FULL-SCALE ENGINE ACOUSTIC TRANSMISSION LOSS DUE TO COMBUSTOR/DUCT COUPLING AND TURBINE ATTENUATION. THESE EXPRESSIONS ARE DERIVED IN TERMS OF READILY AVAILABLE PERFORMANCE AND GEOMETRY PARAMETERS FROM THE BURNER AND TURBINE. NEW PARAMETERS INTRODUCED BY THE PREDICTION SYSTEM INCLUDE THE EFFECTS OF FUEL NOZZLE NUMBER AND BURNER LENGTH. PREDICTIONS ARE SHOWN TO BE IN GOOD AGREEMENT WITH DATA OBTAINED FROM COMPONENT RIG TESTS ON SEVERAL JT8D TYPE BURNER CONFIGURATIONS (INCLUDING SINGLE AND MULTIPLE FUEL NOZZLE, CONVENTIONAL AND LOW EMISSION DESIGNS). IN ADDITION, WHEN TRANSMISSION LOSSES ARE ACCOUNTED FOR, THE PREDICTIONS ARE ALSO SHOWN TO BE IN GOOD AGREEMENT WITH OBSERVED COMBUSTION NOISE LEVELS AND PEAK FREQUENCIES FROM FOUR P AND WA TURBOFAN ENGINES (I.E. THE JT8D-109, JT9D-7A, JT9D-70 AND THE PROTOTYPE JT10D). (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A038 192 1/3 20/1
KAMAN AEROSPACE CORP BLOOMFIELD CONN

HELICOPTER NOISE REDUCTION DESIGN TRADE-OFF STUDY. (U)

DESCRIPTIVE NOTE: FINAL REPT. MAR 76-JAN 77, JAN 77 252P BOWES, MICHAEL A. ;
REPT. NO. R-1493
CONTRACT: DOT-FA76WA-3791
MONITOR: FAA-AEQ 77-4

UNCLASSIFIED REPORT

DESCRIPTORS: *HELICOPTERS, *AIRCRAFT NOISE, *NOISE REDUCTION, AIRCRAFT ENGINE NOISE, HELICOPTER ROTORS, HELICOPTER ENGINES, PERFORMANCE(ENGINEERING), EXPERIMENTAL DESIGN, PERFORMANCE(ENGINEERING), MODIFICATION, TRADE OFF ANALYSES, COST ANALYSIS, STATE OF THE ART, COST BENEFITS (U)

A STUDY WAS PERFORMED TO DETERMINE THE NOISE REDUCTION BENEFITS AND ECONOMIC COSTS ASSOCIATED WITH APPLYING STATE-OF-THE-ART NOISE REDUCTION METHODS TO FUTURE DESIGN CIVIL HELICOPTERS. AS PART OF THIS STUDY, A SURVEY OF THE MAKE-UP OF THE CIVIL FLEET WAS PERFORMED, AND THIS FLEET MAKE-UP WAS PROJECTED TO THE 1980 TIME FRAME. ANALYTICAL METHODS WERE DEVELOPED AND/OR ADOPTED FOR CALCULATING HELICOPTER COMPONENT NOISE, AND THESE METHODS WERE INCORPORATED INTO A UNIFIED TOTAL VEHICLE NOISE CALCULATION MODEL. ANALYTICAL METHODS WERE ALSO DEVELOPED FOR CALCULATING THE EFFECTS OF NOISE REDUCTION METHODOLOGY ON HELICOPTER DESIGN, PERFORMANCE AND COST. THE ANALYTICAL METHODS WERE USED TO CALCULATE BASELINE NOISE AND COST CHARACTERISTICS OF SEVERAL EXISTING CIVIL HELICOPTERS. THESE METHODS WERE ALSO USED TO CALCULATE CHANGES IN NOISE, DESIGN, PERFORMANCE AND COST DUE TO THE INCORPORATION OF ENGINE AND MAIN ROTOR NOISE REDUCTION METHODS. ALL NOISE REDUCTION TECHNIQUES WERE EVALUATED IN THE CONTEXT OF AN ESTABLISHED MISSION PERFORMANCE CRITERION WHICH INCLUDED CONSIDERATION OF HOVER CEILING, FORWARD FLIGHT RANGE/SPEED/PAYLOAD AND ROTOR STALL MARGIN. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A038 613 20/1
GENERAL ELECTRIC CO CINCINNATI OHIO AIRCRAFT ENGINE GROUP

SUPERSONIC JET EXHAUST NOISE INVESTIGATION. VOLUME II. TECHNICAL REPORT. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. 1 DEC 72-23 SEP 75,
JUL 76 396P KNOTT,PAUL R. ;MANI,R. ; MERKLE,C. L. ;RIBNER,H. S. ;SCOTT,P. ;
REPT. NO. R74AEG452-VOL-2
CONTRACT: F33615-73-C-2031
PROJ: 3066
TASK: 14
MONITOR: AFAPL TR-76-68-VOL-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 3, AD-A038 614.

DESCRIPTORS: *JET ENGINE NOISE, *SUPERSONIC AIRCRAFT, *SUPERSONIC FLOW, NOISE, AIRCRAFT NOISE, JETS, EXHAUST GASES, TURBULENCE, TURBULENT FLOW, FLUIDS, SHIELDING, LASER VELOCIMETERS, MEASUREMENT, MATHEMATICAL MODELS (U)
IDENTIFIERS: WUAFAPL30661407, PE62203F (U)

THIS REPORT DISCUSSES DETAILED ACCOUNTS OF MAJOR THEORETICAL AND EXPERIMENTAL INVESTIGATIONS DIRECTED TOWARD OBTAINING BETTER UNDERSTANDING AND MATHEMATICAL SPECIFICATION OF SUPERSONIC TURBULENT JETS. COMPLETE THEORETICAL DISCUSSIONS ARE GIVEN DESCRIBING THE INFLUENCE OF A JET'S MEAN FLOW SHROUDING ON ACOUSTIC RADIATION OF HEATED AND UNHEATED JETS, APPROXIMATE CLOSED FORM ACOUSTIC EXPRESSIONS FOR TURBULENT MIXING NOISE CHARACTERIZED BY SELF-NOISE AND SHEAR-NOISE ARE GIVEN, AND THEORETICAL AERO-ACOUSTIC FORMULATIONS FOR THE ORDERLY STRUCTURE OF SUPERSONIC JETS ARE REVIEWED. EXTENSIVE THEORY/DATA COMPARISONS OF DEVELOPED ACOUSTIC MODELS ARE GIVEN. EXPERIMENTAL INVESTIGATIONS AIMED AT STUDYING HIGH VELOCITY JET REFRACTION, AND THE INFLUENCE OF JET SWIRL AND UPSTREAM COMBUSTION ROUGHNESS ON JET NOISE IS PRESENTED. ADDITIONALLY, AN EXTENSIVE SERIES OF LASER VELOCIMETER MEASUREMENTS FOR HIGH VELOCITY AND HIGH TEMPERATURE SIMPLE CIRCULAR JETS IS DISCUSSED. RESULTS INCLUDE HOT-FILM/LASER VELOCIMETER COMPARISONS FOR AMBIENT JETS, (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A038 614 20/1
GENERAL ELECTRIC CO CINCINNATI OHIO AIRCRAFT ENGINE GROUP

SUPERSONIC JET EXHAUST NOISE INVESTIGATION. VOLUME III. COMPUTER USER'S MANUAL FOR AERO-ACOUSTIC PREDICTIONS. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. 1 DEC 72-23 SEP 75,
JUL 76 683P FERGUSON,DAVID R. ;SMITH, MICHAEL A. ;KNOTT,PAUL R. ;
REPT. NO. R74AEG452-VOL-3
CONTRACT: F33615-73-C-2031
PROJ: 3066
TASK: 14
MONITOR: AFAPL TR-76-68-VOL-3

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-A038 613.

DESCRIPTORS: *JET ENGINE NOISE, *SUPERSONIC FLOW, *SUBSONIC FLOW, *SUPERSONIC AIRCRAFT, *COMPUTER PROGRAMS, MATHEMATICAL MODELS, MATHEMATICAL PREDICTION, COMPUTERIZED SIMULATION, AERODYNAMICS, ACOUSTICS, NOISE, AIRCRAFT NOISE, FLOW CHARTING, INPUT, INSTRUCTION MANUALS (U)
IDENTIFIERS: SSNOISE COMPUTER PROGRAM, SUPERSONIC JET NOISE PREDICTION SYSTEM, JETMIX COMPUTER PROGRAM, SSFD COMPUTER PROGRAM, MERGE COMPUTER PROGRAM, NOISE COMPUTER PROGRAM, WUAFAPL30661407, PE62203F (U)

THIS REPORT GIVES A DETAILED DESCRIPTION OF AERODYNAMIC (SHOCK-FREE/SHOCKED FLOW) AND ACOUSTIC TURBULENT MIXING COMPUTER PREDICTION PROGRAMS DEVELOPED BY THE GENERAL ELECTRIC COMPANY FOR SUBSONIC AND SUPERSONIC SIMPLE EXHAUST JETS. IN ADDITION TO GIVING DETAILED DESCRIPTIONS OF THE AEROACOUSTIC FORMULATIONS AND DISCUSSIONS OF COMPUTER MANUAL INSTRUCTIONS FOR OPERATING THE PROGRAM, EXTENSIVE THEORY/DATA COMPARISONS ARE GIVEN, AS WELL AS COMPUTER PROGRAM LISTINGS AND SAMPLE TEST CASES. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A038 682 20/1 1/3
GENERAL ELECTRIC CO CINCINNATI OHIO AIRCRAFT ENGINE GROUP

SUPERSONIC JET EXHAUST NOISE INVESTIGATION. VOLUME I. SUMMARY REPORT. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT. (FINAL), 1 DEC 72-23 SEP 75,
JUL 76 137P KNOTT,PAUL R. ;
REPT. NO. R74AEG452-VOL-1
CONTRACT: F33615-73-C-2031
PROJ: 3066
TASK: 14
MONITOR: AFAPL TR-76-68-VOL-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-A038 613.

DESCRIPTORS: *JET ENGINE NOISE, *JET ENGINE EXHAUST, *SUPERSONIC AIRCRAFT, ACOUSTIC MEASUREMENT, SUPERSONIC CHARACTERISTICS, MATHEMATICAL ANALYSIS, EXPERIMENTAL DATA, NOISE ANALYZERS, NOISE REDUCTION, SHOCK WAVES, FLOW FIELDS, COMPUTATIONS, TURBULENT FLOW, SHOCK SPECTRA, BOUNDARY LAYER FLOW, LASER VELOCIMETERS, CROSS CORRELATION (U)
IDENTIFIERS: PE62203F, WUAFAPL30661407 (U)

THIS REPORT SUMMARIZES MAJOR THEORETICAL AERODYNAMIC AND ACOUSTIC DEVELOPMENTS AND EXPERIMENTAL FINDINGS AIMED AT PROVIDING A BETTER UNDERSTANDING AND A DETAILED MATHEMATICAL SPECIFICATION OF THE NOISE-PRODUCING SOURCES OF SIMPLE EXHAUST JETS. A REVIEW IS GIVEN OF CALCULATION PROCEDURES FOR SHOCK WAVE STRUCTURE AND FLOW FIELD PROPERTIES OF SIMPLE CIRCULAR JETS. RESULTS OF NEW THEORETICAL ACOUSTIC DEVELOPMENTS ILLUSTRATING THE INFLUENCE OF A JET'S MEAN FLOW SHROUDING ON JET ACOUSTIC RADIATION FOR UNHEATED AND HEATED JETS ARE OUTLINED. ADDITIONAL DISCUSSIONS OF INTERESTING INSIGHTS REGARDING THE CLASSICAL TURBULENT MIXING THEORY OF JET NOISE AND THE AEROACOUSTIC FORMULATIONS FOR A JET'S ORDERLY STRUCTURE ARE GIVEN. SUMMARIES OF A SERIES OF HIGH VELOCITY, HIGH TEMPERATURE VELOCITY FIELD MEASUREMENTS USING A GENERAL ELECTRIC DEVELOPED LASER VELOCIMETER ARE DISCUSSED, AND THE APPLICATION OF THE VELOCIMETER FOR PERFORMING TURBULENCE SPECTRA AND IN-JET TO FAR-FIELD CROSS-CORRELATION TYPE MEASUREMENTS IS REVIEWED. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A039 664 20/1 1/3
UNITED TECHNOLOGIES RESEARCH CENTER EAST HARTFORD CONN

AIRFRAME NOISE PREDICTION METHOD. (U)

DESCRIPTIVE NOTE: FINAL REPT. JUN 76-APR 77,
MAR 77 141P FINK,MARTIN R. ;
REPT. NO. UTRC/R77-912607-11
CONTRACT: DOT-FA76WA-3821
MONITOR: FAA-RD 77-29

UNCLASSIFIED REPORT

DESCRIPTORS: *AIRCRAFT NOISE, *AIRFRAMES, TURBULENT BOUNDARY LAYER, NOISE(SOUND), INTENSITY, POWER SPECTRA, DEFLECTION, COMPUTER PROGRAMS, MATHEMATICAL PREDICTION, FOURIER TRANSFORMATION, LEADING EDGES, TRAILING EDGES, FLAPS(CONTROL SURFACES), WINGS, LANDING GEAR, NOISE REDUCTION (U)

A NOISE COMPONENT METHOD IS PRESENTED FOR CALCULATING AIRFRAME NOISE. NOISE FROM CLEAN WING AND TAIL SURFACE IS REPRESENTED AS TRAILING EDGE NOISE CAUSED BY THE TURBULENT BOUNDARY LAYER. LANDING GEAR NOISE IS GIVEN BY AN EMPIRICAL REPRESENTATION OF MODEL DATA. TRAILING EDGE FLAP NOISE IS MODELED AS A LIFT DIPOLE NORMAL TO THE DEFLECTED FLAP, WITH AMPLITUDE AND SPECTRUM GIVEN BY A CORRELATION OF FLYOVER DATA. MEASURED FLYOVER DATA FOR THE PRUE-2 SAILPLANE, AERO COMMANDER SHIRKE GENERAL AVIATION AIRPLANE, LOCKHEED JETSTAR BUSINESS JET, BOEING 747 COMMERICAL JET, AND CONVAIR F-106B DELTA WING AIRPLANE ARE USED AS TEST CASES. THESE SPECTRA ARE COMPARED WITH PREDICTIONS BY THIS METHOD AND THE NASA ANOPP TOTAL AIRCRAFT METHOD AND DRAG ELEMENT METHOD. METHODS FOR REDUCING VARIOUS COMPONENTS OF AIRFRAME NOISE ARE EXAMINED AND EVALUATED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A039 715 1/3 20/1
BOLT BERANEK AND NEWMAN INC CANOGA PARK CALIF

PHYSICAL ANALYSIS OF THE IMPULSIVE ASPECTS OF HELICOPTER NOISE. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
APR 77 394P GALLOWAY,WILLIAM J. ;
REPT. NO. BBN-3425
CONTRACT: WI-77-3683-1
MONITOR: FAA-EQ 77-8

UNCLASSIFIED REPORT

DESCRIPTORS: *HELICOPTERS, *AIRCRAFT NOISE, *IMPULSE NOISE, NOISE, NOISE POLLUTION, NOISE(SOUND), MEASUREMENT, FRANCE, GREAT BRITAIN, SOUTH AFRICA, UNITED STATES, PSYCHOACOUSTICS, EXPERIMENTAL DATA (U)

AN EVALUATION IS MADE OF SEVERAL HELICOPTER FLYOVER NOISE CALCULATION SCHEMES INTENDED TO DESCRIBE SIGNAL IMPULSIVE CHARACTER. THESE SCHEMES WERE PROPOSED BY ICAO MEMBER ORGANIZATIONS. DATA ARE PRESENTED FOR VARIOUS RECORDED FLYOVERS AND FOR SIMULATIONS OF HELICOPTER FLYOVERS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A039 957 21/5 20/1
PRINCETON UNIV N J DEPT OF AEROSPACE AND MECHANICAL SCIENCES

RESEARCH ON NOISE GENERATED BY DUCTED AIR-FUEL COMBUSTION SYSTEMS. (U)

DESCRIPTIVE NOTE: FINAL REPT. MAR 71-MAR 77, MAR 77 29P PLETT,E. G. ;SUMMERFIELD, M. ;
REPT. NO. AMS-1327
CONTRACT: N00014-67-A-0151-0029, N00014-75-C-0507

UNCLASSIFIED REPORT

DESCRIPTORS: *JET ENGINE NOISE, *DUCTS, *COMBUSTION, *COMBUSTORS, MATHEMATICAL MODELS, EXHAUST GASES, GAS FLOW (U)

THROUGHOUT THE RESEARCH PROGRAM, EMPHASIS HAS BEEN PLACED ON OBTAINING A BETTER UNDERSTANDING OF THE IMPORTANCE OF COMBUSTION AS A SOURCE OF NOISE IN JET ENGINES. THIS HAS BEEN PURSUED IN TERMS OF THEORETICAL MODELING AND EXPERIMENTAL INVESTIGATIONS. A THEORETICAL MODEL WAS DEVELOPED TO ALLOW COMPUTATION OF THE ROLE INTERNAL SOURCES AS WELL AS EXTERNAL SOURCES. CALCULATIONS BASED ON REASONABLE APPROXIMATIONS INDICATED THAT FOR SUBSONIC JET VELOCITIES, INTERNAL SOURCES COULD BE MUCH MORE IMPORTANT THAN THE JET NOISE SOURCES. EXPERIMENTS IN A COLD FLOW WITH CYLINDRICAL STRUTS IMMERSED IN THE FLOW TO GENERATE UNSTEADINESS DEMONSTRATED THIS EFFECT. MORE TO THE POINT, EXPERIMENTS WITH A DUCTED COMBUSTOR ALSO VERIFIED THAT THE COMBUSTION, THOUGH OCCURRING INSIDE THE DUCT, CAUSES UNSTEADINESS IN THE EXHAUST FLOW WHICH IS DIRECTLY RESPONSIBLE FOR NOISE GENERATION. THE NOISE THUS ATTRIBUTABLE TO THE COMBUSTION WAS FOUND TO BE DOMINANT OVER JET NOISE FOR SUBSONIC JETS TO MACH NUMBERS OF APPROXIMATELY 0.6. A UNIFIED THEORY OF COMBUSTION NOISE GENERATION WAS DEVELOPED. DIRECT VERIFICATION OF THE IMPORTANCE OF THE VARIOUS SOURCE TERMS WAS BEGUN. INITIAL RESULTS SUGGEST THAT AT LEAST SEVERAL OF THE TERMS ARE IMPORTANT. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A040 561 1/3 20/1
FEDERAL AVIATION ADMINISTRATION WASHINGTON D C SYSTEMS RESEARCH AND DEVELOPMENT SERVICE

HELICOPTER NOISE MEASUREMENTS DATA REPORT. VOLUME I. HELICOPTER MODELS: HUGHES 300-C. HUGHES 500-C, BELL 47-G. BELL 206L, (U)

APR 77 384P TRUE,HAROLD C. ;LETTY, RICHARD M. ;
REPT. NO. FAA-RD-77-57-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-A040 562.

DESCRIPTORS: *AIRCRAFT NOISE, *HELICOPTERS, DATA BASES, HOVERING, LEVEL FLIGHT, APPROACH, GLIDE SLOPE (U)
IDENTIFIERS: HUGHES 300-C AIRCRAFT, HUGHES 500-C AIRCRAFT, BELL 47-G AIRCRAFT, BELL 206-L AIRCRAFT (U)

THIS DATA REPORT CONTAINS THE MEASURED NOISE LEVELS OBTAINED FROM AN FAA HELICOPTER NOISE TEST PROGRAM. THE PURPOSE OF THIS TEST PROGRAM WAS TO PROVIDE A DATA BASE FOR A POSSIBLE HELICOPTER NOISE CERTIFICATION RULE. THE NOISE DATA PRESENTED IN THIS TWO VOLUME REPORT IS PRIMARILY INTENDED AS A MEANS TO DISSEMINATE THE AVAILABLE INFORMATION. ONLY THE MEASURED DATA IS PRESENTED IN THIS REPORT. ALL FAA/DOT DATA ANALYSIS AND COMPARISONS WILL BE PRESENTED IN A LATER REPORT WHICH IS SCHEDULED FOR DISTRIBUTION IN JULY, 1977. THE EIGHT HELICOPTERS TESTED DURING THIS HELICOPTER NOISE TEST PROGRAM CONSTITUTED A WIDE RANGE OF GROSS WEIGHTS AND INCLUDED PARTICIPATION FROM SEVERAL HELICOPTER MANUFACTURERS. THE HELICOPTER MODELS USED IN THIS TEST PROGRAM WERE THE HUGHES 300C, HUGHES 500C, BELL 47-G, BELL 206-L, BELL 212 (UH-1N), SIKORSKY S-61 (SH-3A), SIKORSKY S-64 'SKYCRANE' (CH-54B), AND BOEING VERTOL 'CHINOOK' CH-47C. VOLUME I CONTAINS THE MEASURED NOISE LEVELS OBTAINED FROM THE FIRST FOUR HELICOPTERS WHILE VOLUME II CONTAINS THE DATA FROM THE REMAINING FOUR. THE TEST PROCEDURE FOR EACH HELICOPTER CONSISTED OF OBTAINING NOISE DATA DURING HOVER, LEVEL FLYOVER, AND APPROACH CONDITIONS. THE DATA PRESENTED IN THIS REPORT CONSISTS OF TIME HISTORIES, (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A040 562 1/3 20/1
FEDERAL AVIATION ADMINISTRATION WASHINGTON D C SYSTEMS RESEARCH AND DEVELOPMENT SERVICE

HELICOPTER NOISE MEASUREMENTS DATA REPORT. VOLUME II. HELICOPTER MODELS: BELL 212 (UH-1N), SIKORSKY S-61 (SH-3A), SIKORSKY S-64 'SKYCRANE' (CH-54B), BOEING VERTOL 'CHINOOK' (CH-47C), (U)

APR 77 420P TRUE,HAROLD C. ;LETTY, RICHARD M. ;
REPT. NO. FAA-RD-77-57-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 1, AD-A040 561.

DESCRIPTORS: *AIRCRAFT NOISE, *HELICOPTERS, DATA BASES, HOVERING, LEVEL FLIGHT, APPROACH, GLIDE SLOPE (U)
IDENTIFIERS: UH-1N AIRCRAFT, SH-3A AIRCRAFT, CH-54B AIRCRAFT, CH-47C AIRCRAFT, H-1 AIRCRAFT, H-3 AIRCRAFT, H-54 AIRCRAFT, H-47 AIRCRAFT (U)

THE HELICOPTER MODELS USED IN THIS TEST PROGRAM WERE THE HUGHES 300C, HUGHES 500C, BELL 47-G, BELL 206-L, BELL 212 (UH-1N), SIKORSKY S-61 (SH-3A), SIKORSKY S-64 'SKYCRANE' (CH-54B), AND BOEING VERTOL 'CHINOOK' CH-47C. VOLUME I CONTAINS THE MEASURED NOISE LEVELS OBTAINED FROM THE FIRST FOUR HELICOPTERS WHILE VOLUME II CONTAINS THE DATA FROM THE REMAINING FOUR. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A041 400 20/1 13/2 5/2
DEFENSE DOCUMENTATION CENTER ALEXANDRIA VA

ENVIRONMENTAL POLLUTION: NOISE POLLUTION - SONIC BOOM. (U)

DESCRIPTIVE NOTE: REPORT BIBLIOGRAPHY APR 59-JUL 76.
JUN 77 201P
REPT. NO. DDC/BIB-77/06

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SUPERSEDES REPT. NO. DDC-TAS-73-74 DATED NOV 73, AD-769 970.

DESCRIPTORS: *SONIC BOOM, *NOISE POLLUTION, *JET PLANE NOISE, *BIBLIOGRAPHIES, SUPERSONIC AIRCRAFT, JET TRANSPORT PLANES, PUBLIC OPINION, PSYCHOACOUSTICS, JET AIRCRAFT, SHOCK WAVES, ABSTRACTS, METEOROLOGICAL PHENOMENA, LAW(JURISPRUDENCE), AIRCRAFT NOISE, PHYSIOLOGICAL EFFECTS, REACTION(PSYCHOLOGY), ENVIRONMENTAL PROTECTION (U)

THIS BIBLIOGRAPHY CONTAINS CITATIONS OF STUDIES AND ANALYSES COVERING A WIDE RANGE OF THE PARAMETER OF SONIC BOOM AND NOISE POLLUTION, AS WELL AS DAMAGES CAUSED BY IT. CORPORATE AUTHOR-MONITORING AGENCY, SUBJECT, TITLE AND PERSONAL AUTHOR ARE PROVIDED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A041 674 20/1 1/5
BOLT BERANEK AND NEWMAN INC CANOGA PARK CALIF

VALIDATION OF AIRCRAFT NOISE EXPOSURE PREDICTION PROCEDURE. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
APR 77 87P SEIDMAN,HARRY ;HORONJEFF, RICHARD D. ;BISHOP,DWIGHT E. ;
REPT. NO. BBN-3299
CONTRACT: F33615-76-C-5003
PROJ: 7231
TASK: 04
MONITOR: AMRL TR-76-111

UNCLASSIFIED REPORT

DESCRIPTORS: *AIRCRAFT NOISE, *AIRPORTS, *NOISE POLLUTION, EXPOSURE(GENERAL), COMMUNITY RELATIONS, MATHEMATICAL PREDICTION, COMPUTERIZED SIMULATION, PLANNING, ESTIMATES, ACCURACY, ALGORITHMS (U)
IDENTIFIERS: WUAMRL723104030, PE62202F (U)

THE NOISEMAP PREDICTIVE PROCEDURE IS USED TO DESCRIBE THE NOISE ENVIRONMENT AROUND AIRBASES AND THEREBY AID AIRBASE PLANNERS TO PREVENT COMMUNITY ENCROACHMENT LIMITING THE EFFECTIVENESS OF THE INSTALLATION. THIS REPORT DELINEATES THE RESULTS OF MEASUREMENTS MADE OVER ONE TO THREE WEEK PERIODS AT FOUR AIR FORCE AIRBASES TO ACQUIRE THE DATA NEEDED TO VALIDATE AND/OR MODIFY THE NOISE PREDICTIVE ALGORITHMS IN NOISEMAP FOR TAKEOFF, LANDING, TRAFFIC PATTERN, AND GROUND RUNUP OPERATIONS. IN GENERAL, THE ALGORITHMS CURRENTLY USED IN NOISEMAP PROVIDED PREDICTIONS THAT AGREED WELL WITH MEASURED DATA. IT WAS FOUND THE OBTAINING ACCURATE DATA ON AIRCRAFT OPERATIONAL PROCEDURES (ENGINE POWER SETTINGS, AIRSPEEDS, AND FLIGHT PATHS) WAS ESSENTIAL. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A041 781 20/1 1/5
BOLT BERANEK AND NEWMAN INC CANOGA PARK CALIF

FURTHER SENSITIVITY STUDIES OF COMMUNITY-AIRCRAFT NOISE EXPOSURE (NOISEMAP) PREDICTION PROCEDURES. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
APR 77 88P BISHOP,DWIGHT E. ;
DUND[illegible] THOMAS C. ;HORONJEFF,RICHARD D. ;
MILL[illegible]
REPT[illegible] 95
CONTRAC[illegible]-76-C-0507
PROJ: [illegible]
TASK: 04
MONITOR: AMRL TR-76-116

UNCLASSIFIED REPORT

DESCRIPTORS: *AIRCRAFT NOISE, *AIRPORTS, *NOISE POLLUTION, PLANNING, COMMUNITY RELATIONS, MODELS, COMPUTER PROGRAMS, AIR FORCE FACILITIES, EXPOSURE(GENERAL), ACOUSTIC ATTENUATION, CLIMATE (U)
IDENTIFIERS: NOISEMAP COMPUTER PROGRAMS, WUAMRL72310428, PE62202F (U)

THIS REPORT DESCRIBES THE RESULTS OF STUDIES OF THE SENSITIVITY OF THE NOISE EXPOSURE CONTOURS TO VARIOUS MODEL PARAMETERS AND ASSUMPTIONS PRESENTLY IN THE NOISEMAP PROCEDURE. THE AREAS WITHIN DAY/NIGHT LEVEL (LDN) CONTOURS FOR TEN AIR FORCE AIRBASES INCREASED BY 11 TO 40 PERCENT WHEN THE NOISE MEASURE WAS ADJUSTED FOR THE PRESENCE OF PURE TONES. THE CONTOUR AREAS FOR TYPICAL MIXED FIGHTER, BOMBER/TANKER, AND TRAINING AIRBASES WERE REDUCED BY 3 TO 11 PERCENT BY SUBSTITUTION OF THE SAE ALGORITHMS FOR GROUND-TO-GROUND PROPAGATION AND TRANSITION MODELS, WHEREAS ADDING THE FUSELAGE SHIELDING ALGORITHM REDUCED THE CONTOUR AREAS BY 13 TO 22 PERCENT. SINCE THERE IS LITTLE FIRM EVIDENCE SHOWING ONE SET OF ALGORITHMS MORE ACCURATE THAN THE OTHER, THE PRESENT NOISEMAP MODELS WILL BE RETAINED UNTIL FURTHER TECHNICAL ANALYSES OR NEW DATA SHOW A CLEAR BASIS FOR ALTERATION. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A041 782 21/5 20/1 1/3
TENNESSEE UNIV SPACE INST TULLAHOMA

INVESTIGATION OF FEASIBLE NOZZLE CONFIGURATIONS FOR NOISE REDUCTION IN TURBOFAN AND TURBOJET AIRCRAFT. VOLUME III. SHROUDED SLOT NOZZLE CONFIGURATIONS. (U)

DESCRIPTIVE NOTE: FINAL REPT. AUG 75-MAR 77, MAR 77 116P GOETHERT,B. H. ;MAUS,J. R. ;DUNNILL,WILLIAM A. ;JOSHI,M. C. ; VEERASAMY,V. ;
CONTRACT: DOT-FA72WA-3053
MONITOR: FAA-RD 75-162-3

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 1, AD-A024 958.

DESCRIPTORS: *JET ENGINE NOISE, *TURBOFAN ENGINES, *TURBOJET ENGINES, *NOISE REDUCTION, *THRUST AUGMENTOR NOZZLES, *AERODYNAMIC NOISE, COVERINGS, THRUST AUGMENTATION, AERODYNAMIC SLOTS, ASPECT RATIO, NOISE POLLUTION, SUPPRESSION, ACOUSTIC ATTENUATION, MACH NUMBER, STAGNATION TEMPERATURE, VERTICAL TAKEOFF AIRCRAFT, SHORT TAKEOFF AIRCRAFT (U)
IDENTIFIERS: *SLOT NOZZLES (U)

THIS REPORT PRESENTS THE RESULTS OF A STUDY OF THE ACOUSTIC AND FLUID DYNAMIC CHARACTERISTICS OF A SHROUDED SLOT NOZZLE. EXPERIMENTS WERE CARRIED OUT ON A SLOT NOZZLE OF ASPECT RATIO 27 WITH AN EJECTOR SHROUD HAVING A CROSS SECTIONAL AREA OF FOUR TIMES THE PRIMARY NOZZLE AREA. PARAMETERS VARIED DURING THE TESTS WERE, SHROUD LENGTH, SHROUD DIVERGENCE RATIO, AND ACOUSTICAL IMPEDANCE OF THE SHROUD WALL. TESTS WERE CONDUCTED FOR PRIMARY FLOW MACH NUMBERS FROM 0.5 TO CHOKING AND STAGNATION TEMPERATURES FROM AMBIENT TO 1200 R. THE RESULTS OF THE STUDY SHOW THAT BOTH THE THRUST AND THE NOISE ATTENUATION CHARACTERISTICS OF THE EJECTOR SHROUD IMPROVE WITH INCREASING LENGTH. THRUST INCREASES OF NEAR 40% WERE OBTAINED FOR THE LONGEST SHROUD TESTED. A NOISE REDUCTION OF 13 DB WAS OBTAINED FOR THE LINED SHROUD WITH A NEAR CHOKED, HIGH TEMPERATURE PRIMARY JET. THE CORRESPONDING THRUST AUGMENTATION WAS APPROXIMATELY 20%. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A041 848 14/2 20/1 21/5
GENERAL ELECTRIC CO CINCINNATI OHIO AIRCRAFT ENGINE GROUP

HIGH VELOCITY JET NOISE SOURCE LOCATION AND REDUCTION. TASK 1. ACTIVATION OF FACILITIES AND VALIDATION OF SOURCE LOCATION TECHNIQUES, (U)

DESCRIPTIVE NOTE: FINAL REPT. AUG 73-MAR 76, FEB 77 671P SAVELL,C. T. ;STRINGAS,E. J. ;
REPT. NO. R77AEG187
CONTRACT: DOT-OS-30034
MONITOR: FAA-RD 76-79-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO TASK 4, AD-A041 849.

DESCRIPTORS: *JET PLANE NOISE, *ACOUSTIC MEASUREMENT, *TEST FACILITIES, ACOUSTIC ATTENUATION, ACOUSTIC REFLECTION, MICROPHONES, LASER VELOCIMETERS, ANECHOIC CHAMBERS, JET ENGINES, TEST STANDS, SCALE MODELS, NOISE REDUCTION, WIND TUNNELS, AIRCRAFT ENGINE NOISE, HIGH VELOCITY (U)
IDENTIFIERS: J-79 ENGINES (U)

THIS REPORT SUMMARIZES THE RESULTS OF TASK 1 AS CONDUCTED UNDER THE SUBJECT PROGRAM. THE INTENT OF THIS 29-MONTH EFFORT WAS TO CHECK OUT CANDIDATE TEST FACILITIES AND NOISE SOURCE LOCATION TECHNIQUES TO ENSURE THAT THE BEST POSSIBLE JET NOISE DATA OVER THE FULL RANGE OF CONDITIONS (VELOCITIES RANGING FROM 600 FPS TO 3000 FPS WITH THE BEST INSTRUMENTATIONS ARE OBTAINED. THE FACILITIES ACTIVATED AND VALIDATED INCLUDED: TWO ANECHOIC FACILITIES; THE UNIVERSITY OF SOUTHERN CALIFORNIA IN LOS ANGELES, CALIFORNIA, AND THE UNIVERSITY OF BRITISH COLUMBIA IN VANCOUVER, CANADA; TWO OUTDOOR SCALE-MODEL JET NOISE FACILITIES; THE GENERAL ELECTRIC JET EXHAUST NOISE OUTDOOR TEST STAND IN EVENDALE, OHIO, AND THE GENERAL ELECTRIC CORPORATE RESEARCH AND DEVELOPMENT CENTER HOT JET NOISE FACILITY AT SCHENECTADY, NEW YORK; ONE LARGE-SCALE ENGINE OUTDOOR TEST STAND; A SUPER SUPPRESSED J79 ENGINE AT THE GENERAL ELECTRIC FACILITY AT EDWARDS AIR FORCE FLIGHT TEST CENTER, CALIFORNIA;

(U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A041 849 20/1 21/5
GENERAL ELECTRIC CO CINCINNATI OHIO AIRCRAFT ENGINE GROUP

HIGH VELOCITY JET NOISE SOURCE LOCATION AND REDUCTION. TASK 4. DEVELOPMENT/ EVALUATION OF TECHNIQUES FOR 'INFLIGHT' INVESTIGATION. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
FEB 77 568P CLAPPER,W. S. ;STRINGAS,E. J. ;
REPT. NO. R77AEG189
CONTRACT: DOT-OS-30034
MONITOR: FAA-RD 76-79-4

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO TASK 1, AD-A041 848.

DESCRIPTORS: *JET PLANE NOISE, *ACOUSTIC MEASUREMENT, INFLIGHT, FLIGHT SIMULATION, WIND TUNNELS, HIGH VELOCITY, AIRCRAFT ENGINE NOISE, ACOUSTIC SIGNATURES, LOCOMOTIVES, JET AIRCRAFT, ROCKET SLEDS (U)
IDENTIFIERS: F-106 AIRCRAFT, LEAR JET AIRCRAFT, AEROTRAIN VEHICLES (U)

THIS REPORT PRESENTS THE RESULTS OF TASK 4 AS CONDUCTED UNDER THE SUBJECT PROGRAM OVER A PERIOD OF 30 MONTHS. TASK 4 WAS FORMULATED TO IDENTIFY AND EVALUATE SEVERAL INFLIGHT SIMULATION TECHNIQUES, SELECT THE MOST PROMISING TECHNIQUE FOR DEMONSTRATION AND VALIDATION, AND EMPLOY THAT TECHNIQUE IN TESTING UNDER TASK 5 OF THE PROGRAM. TECHNIQUES EVALUATED INCLUDE CLOSED-CIRCUIT WIND TUNNELS, FREE JETS, ROCKET SLEDS, AND HIGH SPEED TRAINS. PERTINENT RESULTS FROM THE EVALUATION PHASE AND RATIONALE WHICH LED TO SELECTION OF THE FREE JET SIMULATION TECHNIQUE ARE DISCUSSED, INCLUDING ADVANTAGES AND DISADVANTAGES. THE RESULTS OF A THEORETICAL STUDY AIMED AT RELATING THE NOISE SIGNATURE OBTAINED IN A FREE JET FACILITY FOR SIMULATION OF FORWARD FLIGHT EFFECTS ON JET NOISE WITH THE NOISE SIGNATURE IN TRUE FLIGHT ARE PRESENTED. TRANSFORMATION IS CARRIED OUT BY EXTRACTING 'STATIC DIRECTIVITY' OF THE NOISE AFTER CORRECTING FOR REFRACTION, TURBULENT SCATTERING, AND ABSORPTION EFFECTS, AND THEN EMPLOYING A SUITABLE MULTIPOLE SOURCE DECOMPOSITION TO EVALUATE THE PROPER DYNAMIC EFFECT. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-A042 076 20/1
BOLT BERANEK AND NEWMAN INC CANOGA PARK CALIF

AIRCRAFT SIDELINE NOISE: A TECHNICAL REVIEW AND ANALYSIS OF CONTEMPORARY DATA. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
APR 77 47P WALKER,DAVID Q. ;
REPT. NO. BBN-3291
CONTRACT: F33615-76-C-0507
PROJ: 7231
TASK: 04
MONITOR: AMRL TR-76-115

UNCLASSIFIED REPORT

DESCRIPTORS: *AIRCRAFT NOISE, *AIRPORTS, PLANNING, COMPUTER PROGRAMS, ACOUSTIC ATTENUATION, MATHEMATICAL MODELS, SOUND TRANSMISSION, SIDES, PREDICTIONS (U)
IDENTIFIERS: WUAMRL72310428, PE62202F (U)

THIS REPORT PRESENTS A REVIEW AND ANALYSIS OF RECENT AIRCRAFT FLYOVER DATA WHERE THE AIRCRAFT IS AT A LOW ANGLE OF ELEVATION RELATIVE TO THE OBSERVER. EXCESS ATTENUATION FACTORS (ATTENUATION IN ADDITION TO NORMAL SPHERICAL DIVERGENCE AND ATMOSPHERIC ABSORPTION LOSSES), EVALUATED FOR A RANGE OF AIRCRAFT TYPES, WERE FOUND TO VARY BETWEEN AIRCRAFT AND COULD BE GENERALLY CHARACTERIZED AS A FUNCTION OF AIRCRAFT ANGLE OF ELEVATION ONLY. FUSELAGE SHEIDLING OR INSTALLATION EFFECTS COULD NOT BE POSITIVELY IDENTIFIED ALTHOUGH THEIR PRESENCE IS SUGGESTED BY THE DIFFERING EXCESS ATTENUATION CHARACTERISTICS OF EACH AIRCRAFT TYPE. LACK OF DETAIL IN THE DATA AVAILABLE FOR REVIEW PRECLUDED THE IDENTIFICATION OF ANY PROPAGATION LOSSES DUE TO TURBULENT SCATTERING OF SOUND IN THE ATMOSPHERE. THE RESULTS OF THE STUDY SUGGEST THAT CURRENTLY APPLIED PREDICTIVE MODELS FOR SIDELINE NOISE TEND TO OVERESTIMATE NOISE LEVELS - PARTICULARLY FOR 3 AND 4 ENGINE AIRCRAFT. AN ALTERNATIVE APPROACH TO SIDELINE NOISE PREDICTION IS SUGGESTED AND RECOMMENDATIONS ARE MADE TO ENCOURAGE TECHNICAL DEVELOPMENT IN THIS UNCERTAIN AREA OF AIRCRAFT NOISE PREDICTION. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M09

AD-B002 067 20/1 17/1 6/16
WYLE LABS HAMPTON VA

CORRELATION OF ACTUAL AND ANALYTICAL HELICOPTER AURAL DETECTION CRITERIA. VOLUME I. (U)

DESCRIPTIVE NOTE: FINAL CONTRACTOR REPT. MAR 73-DEC 74,
JAN 75 135P ABRAHAMSON,A LOUIS ;
CONTRACT: DAAJ02-73-C-0057
PROJ: DA-1-F-126205-AH-88
TASK: 1-F-126205-AH-8801
MONITOR: USAAMRDL TR-14-102A

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIRCRAFT NOISE, HELICOPTERS), (*AIRCRAFT DETECTION, *AUDITORY PERCEPTION), (*SOUND TRANSMISSION, AIRCRAFT NOISE), HEARING, FACTOR ANALYSIS, RANGE(DISTANCE), ATTENTION, ARMY PERSONNEL, TERRAIN, MASKING, ATTENUATION, AMBIENT NOISE, FLIGHT PATHS, METEOROLOGICAL DATA, EXPERIMENTAL DATA, DATA REDUCTION, STATISTICAL ANALYSIS, MATHEMATICAL MODELS, VALIDATION, FIELD TESTS, CORRELATION TECHNIQUES, AERODYNAMIC NOISE, JET ENGINE NOISE, GEAR NOISE, WIND, LOW ALTITUDE, POWER SPECTRA, TACTICAL AIR SUPPORT, ARMY AIRCRAFT (U)
IDENTIFIERS: *HELICOPTER NOISE (U)

THIS STUDY WAS CONCEIVED AS A BASIC EXPERIMENT FOR MEASUREMENT OF HELICOPTER AURAL DETECTABILITY, AND FOR ASSESSMENT OF THE ACCURACY OF A MODEL DEVELOPED BY OLLERHEAD FOR COMPUTING AURAL DETECTION DISTANCES. THE EXPERIMENT WAS CONDUCTED OVER A PERIOD OF TWO WEEKS AT NASA WALLOPS STATION UTILIZING 25 ARMY PERSONNEL AS LISTENING SUBJECTS, AND THREE DIFFERENT TYPES OF HELICOPTERS CURRENTLY IN ARMY SERVICE. THE EFFECT OF THE FOLLOWING PARAMETERS WAS INVESTIGATED: AMBIENT NOISE LEVEL, FLIGHT PROFILE, LISTENER ATTENTIVENESS, ATMOSPHERIC CONDITIONS. REDUCTION OF DATA WAS EXECUTED USING A NEW PROCEDURE FOR SIMULATING AURAL FREQUENCY DECOMPOSITION OF SOUND. CORRELATION WITH OLLERHEAD'S MODEL CONFIRMED HIS LABORATORY-DERIVED DETECTABILITY CRITERION AS A MEDIAN CASE FOR INDIVIDUAL RESPONSE AND ALLOWED EXTENSION OF THE CRITERION IN THE CONTEXT OF A MEASURED STATISTICAL DISTRIBUTION. (U)

CORPORATE AUTHOR - MONITORING AGENCY

*ADVISORY GROUP FOR AERONAUTICAL RESEARCH AND DEVELOPMENT PARIS (FRANCE)

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AGARD-433
NOISE AND ITS EFFECT ON AIRCRAFT OPERATION.
AD- 427 666

*ADVISORY GROUP FOR AEROSPACE RESEARCH AND DEVELOPMENT PARIS (FRANCE)

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AGARD-AR-66
TECHNICAL EVALUATION REPORT ON FLUID DYNAMICS PANEL SPECIALISTS MEETING ON NOISE MECHANISMS.
AD- 776 655

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AGARD-LS-77
AIRCRAFT NOISE GENERATION, EMISSION AND REDUCTION.
AD-A012 090

*AERONAUTICAL SYSTEMS DIV WRIGHT-PATTERSON AFB OHIO

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GUIDELINES FOR ESTABLISHING INTERIOR NOISE LEVEL CRITERIA FOR AIR FORCE AIRCRAFT.
(SEG-TR-67-57)
AD- 670 165

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AD- 272 210

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ASD-TR60 689 V1
COMMUNITY REACTIONS TO AIR FORCE NOISE. PART I. BASIC CONCEPTS AND PRELIMINARY METHODOLOGY
AD- 267 052

• • •

ASD-TR60 689 V2
COMMUNITY REACTIONS TO AIR FORCE NOISE. PART II. DATA ON COMMUNITY STUDIES AND THEIR INTERPRETATION
AD- 267 057

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ASD-TR61 611
NOISE FROM AIRCRAFT OPERATIONS
AD- 278 625

*AEROSPACE MEDICAL RESEARCH LAB WRIGHT-PATTERSON AFB OHIO

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AMRL-MEMO-M-22
ACOUSTICAL EVALUATION OF TYPE II AIRCRAFT GROUND RUNUP NOISE SUPPRESSOR AT TRUAX AIR FORCE BASE, WISCONSIN
AD- 294 189

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USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 33. C-131B IN-FLIGHT CREW NOISE.
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AMRL-TR-68-176
MEASUREMENT AND ANALYSIS OF BIOACOUSTIC ENVIRONMENTS ABOARD AC-119G AND AC-130A GUNSHIPS.
AD- 699 593

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ACOUSTIC ENVIRONMENTS PRODUCED BY THE C-5A AIRCRAFT DURING GROUND OPERATIONS.
AD- 716 814

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NOISE AND SPEECH LEVELS ASSOCIATED WITH THE F-111A PREP AREA, MCCLELLAN AFB.
AD- 744 828

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AMRL-TR-73-105
COMMUNITY NOISE EXPOSURE RESULTING FROM AIRCRAFT OPERATIONS: APPLICATION GUIDE FOR PREDICTIVE PROCEDURE.
AD-A004 818

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AMRL-TR-73-107
COMMUNITY NOISE EXPOSURE RESULTING FROM AIRCRAFT OPERATIONS: ACQUISITION AND ANALYSIS OF AIRCRAFT NOISE AND PERFORMANCE DATA.
AD-A017 741

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AMRL-TR-73-108
COMMUNITY NOISE EXPOSURE RESULTING FROM AIRCRAFT OPERATIONS: COMPUTER PROGRAM OPERATOR'S MANUAL.
AD- 785 360

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AMRL-TR-73-108-APP
COMMUNITY NOISE EXPOSURE RESULTING FROM AIRCRAFT OPERATIONS. APPENDIX: NOISEMAP PROGRAM OPERATOR'S MANUAL.
AD-A022 911

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AMRL-TR-73-109
COMMUNITY NOISE EXPOSURE RESULTING FROM AIRCRAFT OPERATIONS: COMPUTER PROGRAM DESCRIPTION.
AD-A004 821

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AMRL-TR-75-40
DEVELOPMENT OF A UNIFORM APPROACH TO CHARACTERIZE NOISE IMPACT ON PEOPLE.
AD-A036 224

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AMRL-TR-75-50-VOL-1
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME I. ORGANIZATION, CONTENT AND APPLICATION.
AD-A031 865

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AMRL-TR-75-50-VOL-31
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 31. B-52H IN-FLIGHT CREW NOISE.
AD-A029 605

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AMRL-TR-75-50-VOL-32
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 32. KC-135A IN-FLIGHT CREW NOISE.
AD-A029 606

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USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 34. VC-118A IN-FLIGHT CREW/PASSENGER NOISE.

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AD-A029 608

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AMRL-TR-75-50-VOL-35
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 35. T-39B IN-FLIGHT CREW/PASSENGER NOISE.

AD-A029 609

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AMRL-TR-75-50-VOL-37
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 37. F-4D IN-FLIGHT CREW NOISE.

AD-A029 610

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AMRL-TR-75-50-VOL-42
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 42. EC-135H IN-FLIGHT CREW NOISE.

AD-A029 613

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AMRL-TR-75-50-VOL-45
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 45. F-111E IN-FLIGHT CREW NOISE.

AD-A029 614

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AMRL-TR-75-50-VOL-46
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 46. O-2A IN-FLIGHT CREW NOISE.

AD-A029 615

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AMRL-TR-75-50-VOL-47
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 47. O-2B IN-FLIGHT CREW NOISE.

AD-A029 616

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AMRL-TR-75-50-VOL-48
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 48. T-33A IN-FLIGHT CREW NOISE.

AD-A029 617

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AMRL-TR-75-50-VOL-49
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 49. T-34A IN-FLIGHT CREW NOISE.

AD-A029 618

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AMRL-TR-75-50-VOL-50
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 50. HH-43B IN-FLIGHT CREW NOISE.

AD-A029 619

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AMRL-TR-75-50-VOL-51
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 51. HH-53C IN-FLIGHT CREW NOISE.

AD-A029 620

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USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 52. A-1E IN-FLIGHT CREW NOISE.

AD-A029 621

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USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 53. AC-119G IN-FLIGHT CREW NOISE.

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AMRL-TR-75-50-VOL-54
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 54. C-123K IN-FLIGHT CREW NOISE.

AD-A029 623

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AMRL-TR-75-50-VOL-55
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 55. AC-130A IN-FLIGHT CREW NOISE.

AD-A029 624

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AMRL-TR-75-50-VOL-56
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 56. HC-130N IN-FLIGHT CREW NOISE.

AD-A029 625

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USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 57. T-28D-5 IN-FLIGHT CREW NOISE.

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USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 58. U-10B IN-FLIGHT CREW NOISE.

AD-A033 641

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USAF BIOENVIRONMENTAL NOISE DATA. VOLUME 59. QU-22B IN-FLIGHT CREW NOISE.

AD-A033 642

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USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 60. UH-1N IN-FLIGHT CREW NOISE.

AD-A029 627

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USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 61. HH-3E IN-FLIGHT CREW NOISE.

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USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 62. C-5A IN-FLIGHT CREW/PASSENGER NOISE.

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USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 64. B-52G AIRCRAFT, NEAR AND FAR-FIELD NOISE.

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USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 65. T-37B AIRCRAFT, NEAR AND FAR-FIELD NOISE.

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TEST PLAN FOR AIRCRAFT RUNUP NOISE PENALTY EVALUATION.

AD-A026 209

• • •

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SENSITIVITY STUDIES OF COMMUNITY-AIRCRAFT NOISE EXPOSURE (NOISEMAP) PREDICTION PROCEDURE.

AD-A026 535

• • •

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VALIDATION OF AIRCRAFT NOISE

EXPOSURE PREDICTION PROCEDURE.
AD-A041 674

• • •

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AIRCRAFT SIDELINE NOISE: A TECHNICAL REVIEW AND ANALYSIS OF CONTEMPORARY DATA.
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• • •

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FURTHER SENSITIVITY STUDIES OF COMMUNITY-AIRCRAFT NOISE EXPOSURE (NOISEMAP) PREDICTION PROCEDURES.
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• • •

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• • •

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• • •

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• • •

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• • •

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• • •

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TEST AND EVALUATION OF A QUIET HELICOPTER CONFIGURATION HH-43B.
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AN EXPERIMENT IN AURAL DETECTION OF HELICOPTERS.
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AN INVESTIGATION OF NOISE GENERATION ON A HOVERING ROTOR.
AD- 721 312

• • •

AROD-8704:3-E
AN INVESTIGATION OF NOISE GENERATION ON A HOVERING ROTOR, PART II.
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247
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AD- 721 312

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D210-10550-1
AN INVESTIGATION OF NOISE GENERATION ON A HOVERING ROTOR, PART II.
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• • •

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• • •

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• • •

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• • •

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• • •

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• • •

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• • •

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• • •

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(ASD-TR61 611)
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NOISE MEASUREMENTS DURING APPROACH OPERATIONS ON RUNWAY 21R AT DETROIT METROPOLITAN AIRPORT.
(FAA-RD-71-117)
AD- 740 642

• • •

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NOISE FROM AIRCRAFT OPERATIONS, U. S. NAVAL AIR STATION, LEMOORE, CALIFORNIA.
AD- 754 111

• • •

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COMMUNITY NOISE EXPOSURE RESULTING FROM AIRCRAFT OPERATIONS: COMPUTER PROGRAM OPERATOR'S MANUAL.
(AMRL-TR-73-108)
AD- 785 360

• • •

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• • •

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COMMUNITY NOISE EXPOSURE RESULTING FROM AIRCRAFT OPERATIONS: ACQUISITION AND ANALYSIS OF AIRCRAFT NOISE AND PERFORMANCE DATA.
(AMRL-TR-73-107)
AD-A017 741

• • •

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COMMUNITY NOISE EXPOSURE RESULTING FROM AIRCRAFT OPERATIONS: COMPUTER PROGRAM DESCRIPTION.
(AMRL-TR-73-109)
AD-A004 821

• • •

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TEST PLAN FOR AIRCRAFT RUNUP NOISE PENALTY EVALUATION.
(AMRL-TR-75-110)
AD-A026 209

• • •

BBN-2946
COMMUNITY NOISE EXPOSURE

RESULTING FROM AIRCRAFT OPERATIONS. APPENDIX: NOISEMAP PROGRAM OPERATOR'S MANUAL. (AMRL-TR-73-108-APP)
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• • •

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SENSITIVITY STUDIES OF COMMUNITY-AIRCRAFT NOISE EXPOSURE (NOISEMAP) PREDICTION PROCEDURE, (AMRL-TR-75-115)
AD-A026 535

• • •

BBN-2964
DEVELOPING NOISE EXPOSURE CONTOURS FOR GENERAL AVIATION AIRPORTS.
(FAA-AS-75-1)
AD-A023 429

• • •

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AIRCRAFT SIDELINE NOISE: A TECHNICAL REVIEW AND ANALYSIS OF CONTEMPORARY DATA.
(AMRL-TR-76-115)
AD-A042 076

• • •

BBN-3295
FURTHER SENSITIVITY STUDIES OF COMMUNITY-AIRCRAFT NOISE EXPOSURE (NOISEMAP) PREDICTION PROCEDURES.
(AMRL-TR-76-116)
AD-A041 781

• • •

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VALIDATION OF AIRCRAFT NOISE EXPOSURE PREDICTION PROCEDURE.
(AMRL-TR-76-111)
AD-A041 674

• • •

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PHYSICAL ANALYSIS OF THE IMPULSIVE ASPECTS OF HELICOPTER NOISE.
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• • •

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• • •

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• • •

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• • •

FACTORS INFLUENCING THE NOISE EXPLOSURE UNDER THE LANDING PATH FOR JET TRANSPORT AIRCRAFT.
(FAA-ADS-39)
AD- 617 765

• • •

STUDY OF THE EFFECT OF DEPARTURE PROCEDURES ON THE NOISE PRODUCED BY JET TRANSPORT AIRCRAFT.
(FAA-ADS-41)
AD- 617 766

• • •

LAND USE PLANNING RELATING TO AIRCRAFT NOISE, APPENDIX A.
AD- 617 954

• • •

DESCRIPTIONS OF FLYOVER NOISE SIGNALS PRODUCED BY VARIOUS JET TRANSPORT AIRCRAFT.
(FAA-DS-67-18)
AD- 657 633

• • •

A STUDY--INSULATING HOUSES FROM AIRCRAFT NOISE.
AD- 666 376

• • •

BBN-1093 VOL. 1
ANALYSIS OF COMMUNITY AND AIRPORT RELATIONSHIPS/NOISE ABATEMENT. VOLUME I. AN APPROACH TO ANALYSIS OF AIRCRAFT NOISE PROBLEMS USING COMPUTER-AIDED TECHNIQUES.
(SRDS-RD-64-148 V1)
AD- 618 190

• • •

BBN-1093 VOL. 2
ANALYSIS OF COMMUNITY AND AIRPORT RELATIONSHIPS NOISE ABATEMENT. VOLUME II. DEVELOPMENT OF AIRCRAFT NOISE COMPATIBILITY CRITERIA FOR VARIED LAND USES.
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• • •

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• • •

ALLOCATING THE COSTS OF ALLEVIATING SUBSONIC JET AIRCRAFT NOISE.
AD- 648 748

•CALSPAN CORP BUFFALO N Y

• • •

EFFECTS OF FINITE DUCT LENGTH AND BLADE CHORD ON NOISE GENERATION BY A ROTATING BLADE ROW.
(AFOSR-TR-79-1096)
AD- 782 165

•CIVIL AEROMEDICAL INST OKLAHOMA CITY OKLA

• • •

COCKPIT NOISE INTENSITY: FIFTEEN SINGLE-ENGINE LIGHT

AIRCRAFT.
(FAA-AM-68-21)
AD- 686 673

• • •

COCKPIT NOISE INTENSITY:
ELEVEN TWIN-ENGINE LIGHT AIRCRAFT.
(FAA-AM-68-25)
AD- 688 111

• • •

AUDITORY PROCESSING FOR SPEECH
INTELLIGIBILITY IMPROVEMENT.
(FAA-AM-70-6)
AD- 717 394

•CONSTRUCTION ENGINEERING RESEARCH LAB
(ARMY) CHAMPAIGN ILL

• • •

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TECHNICAL BACKGROUND: INTERIM
CRITERIA FOR PLANNING ROTARY-WING
AIRCRAFT TRAFFIC PATTERNS, AND
SITING NOISE-SENSITIVE LAND USES.
AD-A031 449

• • •

CERL-IR-N-10
USER MANUAL: INTERIM PROCEDURE
FOR PLANNING ROTARY-WING AIRCRAFT
TRAFFIC PATTERNS AND SITING NOISE-
SENSITIVE LAND USES.
AD-A031 450

•CORNELL AERONAUTICAL LAB INC BUFFALO
N Y

• • •

EVALUATION OF AIRPORT NOISE AND
COMMUNITY REACTION
AD- 263 053

•CORNELL UNIV ITHACA N Y

• • •

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FREQUENCY RADIATION FROM SUBSONIC
ROTORS.
(ARO-9372.4-E)
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•DEFENSE DOCUMENTATION CENTER
ALEXANDRIA VA

• • •

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POLLUTION - SONIC BOOM.
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VERSUCHSANSTALT FUER LUFT- UND
RAUMFAHRT E V AACHEN (WEST GERMANY)

• • •

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ON THE TRANSMISSION OF SOUND
WAVES THROUGH A BLADE ROW.
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VERSUCHSANSTALT FUER LUFT- UND
RAUMFAHRT E V BERLIN (WEST GERMANY)

• • •

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NEW ASPECTS OF SOUND GENERATION
BY CIRCULAR JETS.
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• • •

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DC-9 NOISE RETROFIT
FEASIBILITY. VOLUME I. LOWER GOAL
NOISE, PERFORMANCE AND COST
EVALUATION.
(FAA-RD-73-124-1)
AD- 776 127

• • •

MDC-J4356
DC-9 NOISE RETROFIT
FEASIBILITY. VOLUME II. UPPER
GOAL NOISE, PERFORMANCE AND COST
EVALUATION.
(FAA-RD-73-124-2)
AD- 777 895

• • •

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AIRCRAFT NOISE DEFINITION.
PHASE II. ANALYSIS OF FLYOVER-NOISE
DATA FOR THE DC-8-61 AIRCRAFT.
(FAA-EQ-74-5)
AD-A019 759

• • •

MDC-J5973
AIRCRAFT NOISE DEFINITION.
PHASE I. ANALYSIS OF EXISTING DATA
FOR THE DC-8, DC-9 AND DC-10
AIRCRAFT.
(FAA-EQ-73-5)
AD-A016 278

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ZURICH (SWITZERLAND) INSTITUT FUER
HYGIENE UND ARBEITSPHYSIOLOGIE

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UEBER DIE STOERWIRKUNG VON
FLUGZEUGLAERM (EXPERIMENTAL
INVESTIGATIONS OF DISCOMFORT
PRODUCED BY AIRPLANE NOISES).
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CALIF

• • •

EVALUATION OF HEARING LEVELS OF
RESIDENTS LIVING NEAR A MAJOR
AIRPORT.
(FAA-RD-72-72)
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TEX

• • •

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OVERFLIGHTS, WICHITA MOUNTAINS
WILDLIFE REFUGE AND VICINITY, FORT
SILL, OKLAHOMA.
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EMISSIONS FROM NOISE SUPPRESORS FOR
ENGINE TEST STANDS AND AIRCRAFT
POWER CHECK PADS.
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• • •

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• • •

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COMMUNITY NOISE SURVEY-OFFUTT AFB, NEBRASKA.
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• • •

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• • •

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• • •

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• • •

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• • •

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• • •

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• • •

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• • •

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• • •

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• • •

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• • •

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• • •

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• • •

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• • •

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NOISE EXPOSURE FORECASTS FOR O'HARE INTERNATIONAL AIRPORT.
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• • •

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NOISE EXPOSURE FORECASTS FOR LOS ANGELES INTERNATIONAL AIRPORT.
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• • •

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• • •

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NOISE.
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• • •

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DESCRIPTIONS OF FLYOVER NOISE SIGNALS PRODUCED BY VARIOUS JET TRANSPORT AIRCRAFT.
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• • •

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• • •

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SUPERSONIC TRANSPORT NOISE REDUCTION TECHNOLOGY SUMMARY. PHASE I.
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• • •

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• • •

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• • •

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• • •

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• • •

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• • •

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• • •

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• • •

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ANALYSIS OF OPERATIONAL NOISE MEASUREMENTS IN TERMS OF SELECTED HUMAN RESPONSE NOISE EVALUATION MEASURES.
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• • •

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• • •

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• • •

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• • •

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• • •

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• • •

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CORE ENGINE NOISE CONTROL PROGRAM. VOLUME I. IDENTIFICATION OF COMPONENT NOISE SOURCES.
AD-A013 128

• • •

FAA-RD-74-125-2
CORE ENGINE NOISE CONTROL PROGRAM. VOLUME II. IDENTIFICATION OF NOISE GENERATION AND SUPPRESSION MECHANISMS.
AD-A013 129

• • •

FAA-RD-74-125-3
CORE ENGINE NOISE CONTROL PROGRAM. VOLUME III. PREDICTION METHODS.
AD-A013 131

• • •

FAA-RD-74-125-3-1
CORE ENGINE NOISE PROGRAM. VOLUME III. PREDICTION METHODS -- SUPPLEMENT I. - EXTENSION OF PREDICTION METHODS.
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• • •

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A COMPREHENSIVE REVIEW OF HELICOPTER NOISE LITERATURE.
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• • •

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EFFECT OF TEMPERATURE AND HUMIDITY ON AIRCRAFT NOISE PROPAGATION.
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• • •

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V/STOL AIRCRAFT NOISE PREDICTION (JET PROPULSORS).
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• • •

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INVESTIGATION OF FEASIBLE NOZZLE CONFIGURATIONS FOR NOISE REDUCTION IN TURBOFAN AND TURBOJET AIRCRAFT. VOLUME I. SUMMARY AND MULTINOZZLE CONFIGURATIONS.
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• • •

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INVESTIGATION OF FEASIBLE NOZZLE CONFIGURATIONS FOR NOISE REDUCTION IN TURBOFAN AND TURBOJET AIRCRAFT. VOLUME II. SLOT NOZZLE CONFIGURATION.
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• • •

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INVESTIGATION OF FEASIBLE NOZZLE CONFIGURATIONS FOR NOISE REDUCTION IN TURBOFAN AND TURBOJET AIRCRAFT. VOLUME III. SHROUDED SLOT NOZZLE CONFIGURATIONS.
AD-A041 782

• • •

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REVIEW OF STUDIES INVESTIGATING HUMAN RESPONSE TO COMMERCIAL AIRCRAFT NOISE.
AD-A022 356

• • •

FAA-RD-75-190
NOISE CERTIFICATION CRITERIA

AND IMPLEMENTATION CONSIDERATIONS FOR V/STOL AIRCRAFT. VOLUME I.
AD-A018 036

• • •

FAA-RD-75-216
AIRPORT NOISE MONITORING SYSTEMS.
AD-A028 511

• • •

FAA-RD-76-49.1
V/STOL ROTARY PROPULSION SYSTEMS NOISE PREDICTION AND REDUCTION. VOLUME I. IDENTIFICATION OF SOURCES, NOISE GENERATING MECHANISMS, NOISE REDUCTION MECHANISMS, AND PREDICTION METHODOLOGY.
AD-A027 389

• • •

FAA-RD-76-49.2
V/STOL ROTARY PROPULSION SYSTEMS NOISE PREDICTION AND REDUCTION. VOLUME II. GRAPHICAL PREDICTION METHODS.
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• • •

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V/STOL ROTARY PROPULSION SYSTEMS - NOISE PREDICTION AND REDUCTION. VOLUME III. COMPUTER PROGRAM USER'S MANUAL.
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• • •

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AIRCRAFT CONFIGURATION NOISE REDUCTION. VOLUME I. ENGINEERING ANALYSIS.
AD-A030 655

• • •

FAA/RD-76/76-2
AIRCRAFT CONFIGURATION NOISE REDUCTION. VOLUME II. COMPUTER PROGRAM USER'S GUIDE AND OTHER APPENDICES.
AD-A030 656

• • •

FAA/RD-76/76-3
AIRCRAFT CONFIGURATION NOISE REDUCTION. VOLUME III. COMPUTER PROGRAM SOURCE LISTING.
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HIGH VELOCITY JET NOISE SOURCE LOCATION AND REDUCTION. TASK 1. ACTIVATION OF FACILITIES AND VALIDATION OF SOURCE LOCATION TECHNIQUES.
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• • •

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HIGH VELOCITY JET NOISE SOURCE LOCATION AND REDUCTION. TASK 4. DEVELOPMENT/EVALUATION OF TECHNIQUES FOR 'INFLIGHT' INVESTIGATION.
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FAA-RD-76-116
NOISE CERTIFICATION CONSIDERATIONS FOR HELICOPTERS BASED ON LABORATORY INVESTIGATIONS.
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FAA-RD-77-3
COMBUSTION NOISE INVESTIGATION.
AD-A038 154

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FAA-RD-77-29
AIRFRAME NOISE PREDICTION METHOD.
AD-A039 664

• • •

FAA-RD-77-57-1
HELICOPTER NOISE MEASUREMENTS DATA REPORT. VOLUME I. HELICOPTER MODELS: HUGHES 300-C, HUGHES 500-C, BELL 47-G, BELL 206L.
AD-A040 561

• • •

FAA-RD-77-57-2
HELICOPTER NOISE MEASUREMENTS DATA REPORT. VOLUME II. HELICOPTER MODELS: BELL 212 (UH-1N), SIKORSKY S-61 (SH-3A), SIKORSKY S-64 'SKYCRANE' (CH-54B), BOEING VERTOL 'CHINOOK' (CH-47C),
AD-A040 562

• • •

SRDS-RD-64-148 V1
ANALYSIS OF COMMUNITY AND AIRPORT RELATIONSHIPS/NOISE ABATEMENT. VOLUME I. AN APPROACH TO ANALYSIS OF AIRCRAFT NOISE PROBLEMS USING COMPUTER-AIDED TECHNIQUES.
AD- 618 190

• • •

SRDS-RD-64-148 V2
ANALYSIS OF COMMUNITY AND AIRPORT RELATIONSHIPS NOISE ABATEMENT. VOLUME II. DEVELOPMENT OF AIRCRAFT NOISE COMPATIBILITY CRITERIA FOR VARIED LAND USES.
AD- 618 191

• • •

SRDS-RD-66-31
DISCUSSION OF THE UTILITY OF AVAILABLE TECHNIQUES FOR MEASURING AIRCRAFT NOISE AND PREDICTING COMMUNITY RESPONSE.
AD- 638 491

•FEDERAL AVIATION ADMINISTRATION WASHINGTON D C OFFICE OF AVIATION MEDICINE

• • •

FAA-AM-68-21
COCKPIT NOISE INTENSITY: FIFTEEN SINGLE-ENGINE LIGHT AIRCRAFT.
AD- 686 673

• • •

FAA-AM-68-25
COCKPIT NOISE INTENSITY: ELEVEN TWIN-ENGINE LIGHT AIRCRAFT.
AD- 688 111

• • •

FAA-AM-70-6
AUDITORY PROCESSING FOR SPEECH INTELLIGIBILITY IMPROVEMENT.
AD- 717 394

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• • •

FAA-AEQ-77-4

HELICOPTER NOISE REDUCTION DESIGN TRADE-OFF STUDY.
AD-A038 192

• • •

FAA-EQ-71-1
RESEARCH STUDY OF COST EFFECTIVENESS OF AUXILIARY LAUNCH SYSTEMS APPLICABLE TO COMMERCIAL TRANSPORTS FOR PURPOSES OF NOISE ABATEMENT.
AD- 732 264

• • •

FAA-EQ-73-1
RESULTS OF NOISE SURVEYS OF SEVENTEEN GENERAL AVIATION TYPE AIRCRAFT.
AD- 759 212

• • •

FAA-EQ-73-3
AIRCRAFT SOUND DESCRIPTION SYSTEM BACKGROUND AND APPLICATION.
AD- 758 588

• • •

FAA-EQ-73-5
AIRCRAFT NOISE DEFINITION. PHASE I. ANALYSIS OF EXISTING DATA FOR THE DC-8, DC-9 AND DC-10 AIRCRAFT.
AD-A016 278

• • •

FAA-EQ-73-6-VOL-1
COMMERCIAL AIRCRAFT NOISE DEFINITION - L1011 TRISTAR. VOLUME I.
AD-A012 371

• • •

FAA-EQ-73-6-VOL-2
COMMERCIAL AIRCRAFT NOISE DEFINITION - L-1011 TRISTAR. VOLUME II-L-1011-1 DATA.
AD-A012 372

• • •

FAA-EQ-73-6-VOL-3
COMMERCIAL AIRCRAFT NOISE DEFINITION - L-1011 TRISTAR. VOLUME III - PROGRAM USER'S MANUAL.
AD-A012 373

• • •

FAA-EQ-73-6-VOL-4
COMMERCIAL AIRCRAFT NOISE DEFINITION - L-1011 TRISTAR. VOLUME IV-PROGRAM DESIGN SPECIFICATION.
AD-A012 374

• • •

FAA-EQ-73-6-VOL-5
COMMERCIAL AIRCRAFT NOISE DEFINITION - L-1011 TRISTAR. VOLUME V-COMPUTER PROGRAMMER'S MANUAL.
AD-A012 375

• • •

FAA-EQ-73-7-1
AIRCRAFT NOISE DEFINITION.
AD-A012 384

• • •

FAA-EQ-73-7-2
AIRCRAFT NOISE DEFINITION. INDIVIDUAL AIRCRAFT TECHNICAL DATA-MODEL 707.
AD-A014 642

• • •

FAA-EQ-73-7-3
AIRCRAFT NOISE DEFINITION - INDIVIDUAL AIRCRAFT TECHNICAL DATA--MODEL 727.
AD-A013 177

• • •

FAA-EQ-73-7-4
AIRCRAFT NOISE DEFINITION. INDIVIDUAL AIRCRAFT TECHNICAL DATA MODEL - 737.
AD-A014 964

• • •

FAA-EQ-73-7-6
BOEING AIRPLANE/NOISE PERFORMANCE COMPUTER PROGRAM. USER'S MANUAL.
AD-A012 385

• • •

FAA-EQ-73-7-7
BOEING AIRPLANE/NOISE PERFORMANCE COMPUTER PROGRAM. PROGRAMMER'S MANUAL.
AD-A013 768

• • •

FAA-EQ-74-2-1
AIRCRAFT SOUND DESCRIPTION SYSTEM (ASDS) APPLICATION PROCEDURES. VOLUME I. OVERVIEW.
AD- 786 612

• • •

FAA-EQ-74-2-2
AIRCRAFT SOUND DESCRIPTION SYSTEM (ASDS) APPLICATION PROCEDURES. VOLUME II. MANUAL APPLICATION PROCEDURES.
AD- 786 613

• • •

FAA-EQ-74-2-3
AIRCRAFT SOUND DESCRIPTION SYSTEM (ASDS) APPLICATION PROCEDURES. VOLUME III. DATA TABLES.
AD-A013 435

• • •

FAA-EQ-74-2-4
AIRCRAFT SOUND DESCRIPTION SYSTEM (ASDS) APPLICATION PROCEDURES. VOLUME IV. COMPUTER APPLICATION PROCEDURES.
AD- 786 615

• • •

FAA-EQ-74-5
AIRCRAFT NOISE DEFINITION. PHASE II. ANALYSIS OF FLYOVER-NOISE DATA FOR THE DC-8-61 AIRCRAFT.
AD-A019 759

• • •

FAA-EQ-76-2
FAA INTEGRATED NOISE MODEL USER'S GUIDE.
AD-A035 062

• • •

FAA-EQ-76-6
FAA INTEGRATED NOISE MODEL DATA BASE.
AD-A036 723

• • •

FAA-EQ-77-8
PHYSICAL ANALYSIS OF THE IMPULSIVE ASPECTS OF HELICOPTER NOISE.
AD-A039 715

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• • •

FAA-NO-68-33
COMPARISONS BETWEEN SUBJECTIVE RATINGS OF AIRCRAFT NOISE AND VARIOUS OBJECTIVE MEASURES.

AD- 673 682

• • •

FAA-NO-68-34
AIRCRAFT NOISE EVALUATION.

AD- 676 230

• • •

FAA-NO-68-35
SUBJECTIVE EVALUATION OF GENERAL AVIATION AIRCRAFT NOISE.

AD- 673 987

• • •

FAA-NO-69-2
NOISE EXPOSURE FORECAST CONTOUR INTERPRETATIONS OF AIRCRAFT NOISE TRADEOFF STUDIES.

AD- 695 507

• • •

FAA-NO-69-3
THE EFFECTS OF TEMPORAL AND SPECTRAL COMBINATIONS ON THE JUDGED NOISINESS OF AIRCRAFT SOUNDS.

AD- 712 734

• • •

FAA-NO-70-7
NOISE EXPOSURE FORECAST CONTOURS FOR AIRCRAFT NOISE TRADEOFF STUDIES AT THREE MAJOR AIRPORTS.

AD- 710 525

• • •

FAA-NO-70-8
NOISE EXPOSURE FORECAST CONTOURS FOR 1967, 1970 AND 1975 OPERATIONS AT SELECTED AIRPORTS.

AD- 712 646

• • •

FAA-NO-70-9
NOISE EXPOSURE FORECASTS: EVOLUTION, EVALUATION, EXTENSIONS, AND LAND USE INTERPRETATIONS.

AD- 711 131

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• • •

PRESENTATIONS AT NATIONAL AIRCRAFT NOISE SYMPOSIUM, SPONSORED BY THE FEDERAL AVIATION AGENCY AT THE INTERNATIONAL HOTEL, JOHN F. KENNEDY INTERNATIONAL AIRPORT, JAMAICA, NEW YORK, JUNE 9, 1965.

AD- 619 282

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BYPASS TURBOJET ENGINE NOISE CHARACTERISTICS ON THE TEST STAND.

AD-A003 086

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INVESTIGATION OF THE NOISE ASPECTS OF CARRIER DECK JET ENGINE OPERATION, AND EFFECTS OF NOISE SUPPRESSION ON AIRCRAFT MISSION PERFORMANCE. VOLUME I. EFFECTS OF NOISE FROM CARRIER DECK JET ENGINE OPERATION ON HEARING, SPEECH INTERFERENCE, AND SONIC FATIGUE.

AD- 432 086

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SUPERSONIC JET EXHAUST NOISE.
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• • •

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(FAA-RD-71-85-VOL-2)

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• • •

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• • •

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• • •

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AD- 786 467

• • •

CORE ENGINE NOISE CONTROL PROGRAM. VOLUME I. IDENTIFICATION OF COMPONENT NOISE SOURCES.
(FAA-RD-74-125-1)

AD-A013 128

• • •

CORE ENGINE NOISE CONTROL PROGRAM. VOLUME II. IDENTIFICATION OF NOISE GENERATION AND SUPPRESSION MECHANISMS.
(FAA-RD-74-125-2)

AD-A013 129

• • •

CORE ENGINE NOISE CONTROL PROGRAM. VOLUME III. PREDICTION METHODS.
(FAA-RD-74-125-3)

AD-A013 131

• • •

R72AEG342-VOL-1
SUPERSONIC TRANSPORT NOISE REDUCTION TECHNOLOGY SUMMARY. PHASE I. SUMMARY OF GE4/SST ACOUSTIC SUPPRESSION RESEARCH. VOLUME 1.
(FAA-SS-72-42-VOL-1)

AD- 907 109

• • •

R72AEG342-VOL-2
SUPERSONIC TRANSPORT NOISE REDUCTION TECHNOLOGY SUMMARY. PHASE I. SUMMARY OF GE4/SST ACOUSTIC SUPPRESSION RESEARCH. VOLUME 2.
(FAA-SS-72-42-VOL-2)

AD- 907 110

• • •

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SUPERSONIC TRANSPORT NOISE REDUCTION TECHNOLOGY SUMMARY. PHASE I.
(FAA-SS-72-43)

AD- 907 108

• • •

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• • •

R74AEG452-VOL-3
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(AFAPL-TR-76-68-VOL-3)
AD-A038 614

• • •

R76AEG305-VOL-3-SUPPL-1
CORE ENGINE NOISE PROGRAM. VOLUME III. PREDICTION METHODS -- SUPPLEMENT I. - EXTENSION OF PREDICTION METHODS.
(FAA-RD-74-125-3-1)
AD-A030 376

• • •

R77AEG187
HIGH VELOCITY JET NOISE SOURCE LOCATION AND REDUCTION. TASK 1. ACTIVATION OF FACILITIES AND VALIDATION OF SOURCE LOCATION TECHNIQUES.
(FAA-RD-76-79-1)
AD-A041 848

• • •

R77AEG189
HIGH VELOCITY JET NOISE SOURCE LOCATION AND REDUCTION. TASK 4. DEVELOPMENT/EVALUATION OF TECHNIQUES FOR 'INFLIGHT' INVESTIGATION.
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AD-A041 849

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INVESTIGATION OF AIRCRAFT COMBUSTOR NOISE.
(USAAMRDL-TR-74-73)
AD-A001 737

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COMBUSTION GENERATED NOISE IN TURBOPROPULSION SYSTEMS.
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•GOVERNMENT-INDUSTRY DATA EXCHANGE PROGRAM

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CONSTRAINED LAYER TREATMENTS FOR NOISE CONTROL IN A HELICOPTER.
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GRUMMAN JET NOISE FACILITY.
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• • •

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BASELINE NOISE MEASUREMENTS OF THE OH-58A HELICOPTER.
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HRC-TN-144
COMPUTER PROGRAMS FOR UNDERWATER SOUND FIELDS DUE TO AIRBORNE SOURCES.
AD- 891 216

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• • •

HRC-TR-S-211
ANALYSIS OF OPERATIONAL NOISE MEASUREMENTS IN TERMS OF SELECTED HUMAN RESPONSE NOISE EVALUATION MEASURES.
(FAA-RD-71-112)
AD- 741 149

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• • •

EXPERIMENTAL ATMOSPHERIC ABSORPTION COEFFICIENTS.
(FAA-RD-71-99)
AD- 739 987

• • •

HRC-TR-S-208
MEASUREMENT AND ANALYSIS OF NOISE FROM FOUR AIRCRAFT DURING APPROACH AND DEPARTURE OPERATIONS (727, KC-135, 707-320B, AND DC-9).
(FAA-RD-71-84)
AD- 740 563

• • •

HRC-TR-S-209
MEASUREMENT AND ANALYSIS OF NOISE FROM FOUR AIRCRAFT IN LEVEL FLIGHT (727, KC-135, 707-320B AND DC-9).
(FAA-RD-71-83)
AD- 739 870

• • •

HRC-TR-S-212
MEASUREMENT AND ANALYSIS OF NOISE FROM SEVENTEEN AIRCRAFT IN LEVEL FLIGHT (MILITARY, BUSINESS JET, AND GENERAL AVIATION).
(FAA-RD-71-98)
AD- 741 248

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• • •

RESULTS OF NOISE SURVEYS OF SEVENTEEN GENERAL AVIATION TYPE AIRCRAFT.
(FAA-EQ-73-1)
AD- 759 212

•IIT RESEARCH INST CHICAGO ILL

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STUDY OF NOISE IN AIR ROUTE TRAFFIC CONTROL CENTER, FLIGHT SERVICE STATION, AIR TRAFFIC CONTROL TOWER AND REMOTE FACILITIES.
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AD- 743 095

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• • •

PWA-5478
COMBUSTION NOISE INVESTIGATION.
(FAA-RD-77-3)
AD-A038 154

•KAMAN AEROSPACE CORP BLOOMFIELD CONN

• • •

R-914
TEST AND EVALUATION OF A QUIET HELICOPTER CONFIGURATION HH-43B.
(USAAMRDL-TR-71-31)
AD- 901 273

• • •

R-1493
HELICOPTER NOISE REDUCTION DESIGN TRADE-OFF STUDY.
(FAA-AEQ-77-4)
AD-A038 192

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• • •

A STUDY OF THE CHARACTERISTICS OF MODERN ENGINE NOISE AND THE RESPONSE CHARACTERISTICS OF STRUCTURES
(ASD-TR60 220)
AD- 272 210

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• • •

LR-26075-VOL-1
COMMERCIAL AIRCRAFT NOISE DEFINITION - L1011 TRISTAR. VOLUME I.
(FAA-EQ-73-6-VOL-1)
AD-A012 371

• • •

LR-26075-VOL-2
COMMERCIAL AIRCRAFT NOISE DEFINITION - L-1011 TRISTAR. VOLUME II-L-1011-1 DATA.
(FAA-EQ-73-6-VOL-2)
AD-A012 372

• • •

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COMMERCIAL AIRCRAFT NOISE DEFINITION - L-1011 TRISTAR. VOLUME III - PROGRAM USER'S MANUAL.
(FAA-EQ-73-6-VOL-3)
AD-A012 373

• • •

LR-26075-VOL-4
COMMERCIAL AIRCRAFT NOISE DEFINITION - L-1011 TRISTAR. VOLUME IV-PROGRAM DESIGN SPECIFICATION.
(FAA-EQ-73-6-VOL-4)
AD-A012 374

• • •

LR-26075-VOL-5
COMMERCIAL AIRCRAFT NOISE DEFINITION - L-1011 TRISTAR. VOLUME V-COMPUTER PROGRAMMER'S MANUAL.
(FAA-EQ-73-6-VOL-5)
AD-A012 375

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(AFAPL-TR-72-53-VOL-2)
AD- 749 137

• • •

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• • •

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• • •

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AD- 749 140

• • •

THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME V - APPENDIX I. TURBULENCE MIXING REGION NOISE DATA.
AD- 749 141

• • •

THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME V - APPENDIX II. SHOCK ASSOCIATED NOISE DATA.
AD- 749 142

• • •

THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME VI. JET FLOW MEASUREMENT AND ANALYSIS WITH SPECIAL EMPHASIS ON REMOTE SENSING DEVICES. CROSSED BEAM SCHLIEREN, LASER DOPPLER VELOCIMETER, PULSED LASER INTERFEROMETER.
(AFAPL-TR-72-53-VOL-6)
AD- 749 143

• • •

THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME I. SUMMARY OF SUPERSONIC JET NOISE STUDIES.
(AFAPL-TR-72-53-VOL-1)
AD- 749 428

• • •

LG74ER0010
THE GENERATION AND RADIATION OF

SUPERSONIC JET EXHAUST NOISE: A PROGRESS REPORT ON STUDIES OF JET NOISE GENERATION AND RADIATION, TURBULENCE STRUCTURE AND LASER VELOCIMETRY.
(AFAPL-TR-74-24)
AD- 787 192

• • •

LG74ER0147
ACOUSTIC EMISSION STRUCTURE-BORNE NOISE MEASUREMENTS ON AIRCRAFT DURING FLIGHT.
(AFML-TR-75-185)
AD-A033 188

• • •

LG75ER0054
V/STOL AIRCRAFT NOISE PREDICTION (JET PROPULSORS).
(FAA-RD-75-125)
AD-A028 765

• • •

LG76ER0133-VOL-1
THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME I. SUMMARY.
(AFAPL-TR-76-65-VOL-1)
AD-A032 478

• • •

LG76ER0133-VOL-2
THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME II. STUDIES OF JET NOISE, TURBULENCE STRUCTURE AND LASER VELOCIMETRY.
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AD-A032 881

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THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME III. TURBULENT MIXING NOISE DATA.
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AD-A032 882

• • •

LG76ER0133-VOL-4
THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME IV. SHOCK-ASSOCIATED NOISE DATA.
(AFAPL-TR-76-65-VOL-4)
AD-A032 883

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• • •

MAN-1018
NOISE CERTIFICATION CRITERIA AND IMPLEMENTATION CONSIDERATIONS FOR V/STOL AIRCRAFT. VOLUME I.
(FAA-RD-75-190)
AD-A018 036

• • •

MAN-1018
REVIEW OF STUDIES INVESTIGATING HUMAN RESPONSE TO COMMERCIAL AIRCRAFT NOISE.
(FAA-RD-75-182)
AD-A022 356

• • •

MAN-1019
NOISE CERTIFICATION CONSIDERATIONS FOR HELICOPTERS BASED ON LABORATORY INVESTIGATIONS.
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AD-A032 028

•MASSACHUSETTS INST OF TECH CAMBRIDGE

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AD- 646 775

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• • •

HRL/1
CONVENTIONAL AND HIGH FREQUENCY HEARING OF NAVAL AIRCREWMEN AS A FUNCTION OF NOISE EXPOSURE.
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• • •

MTR-6616-SER-1-VOL-3
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AD- 786 615

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(FAA-EQ-76-2)
AD-A035 062

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FAA INTEGRATED NOISE MODEL DATA BASE.
(FAA-EQ-76-6)
AD-A036 723

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• • •

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A SIMPLE MODEL OF SHOCK CELL NOISE GENERATION AND ITS REDUCTION. (NRC-12923)
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AD- 638 491

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A SIMPLE MODEL OF SHOCK CELL NOISE GENERATION AND ITS REDUCTION.
AD- 754 943

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AD-A030 639

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• • •

DME-ME-293
MODEL STUDY OF A PROPOSED ENGINEERING ACOUSTIC RESEARCH FACILITY (ETUDE SUR MODELE D'UN PROJET D'INSTALLATION DE RECHERCHES EN GENIE ACOUSTIQUE), (NRC-15480)
AD-A030 639

•NAVAL ACADEMY ANNAPOLIS MD ENVIRONMENTAL PROTECTION RESEARCH AND DEVELOPMENT TEAM

• • •

USNA-EPRD-1
FORCES ON A COANDA SURFACE.
AD- 775 950

•NAVAL AEROSPACE MEDICAL INST PENSACOLA FLA

• • •

NAMI-1037
THE RELATIONSHIP OF THE NAVAL AVIATOR'S SPEECH DISCRIMINATION TEST TO THE PURE TONE AUDIOGRAM,
AD- 671 188

•NAVAL AEROSPACE MEDICAL RESEARCH LAB PENSACOLA FLA

• • •

A PROGRESS REPORT ON THE NAVAL AVIATORS' SPEECH DISCRIMINATION TEST,
AD- 716 766

• • •

NAMRL-1190
THE EFFECT OF NOISE EXPOSURE DURING PRIMARY FLIGHT TRAINING ON THE CONVENTIONAL AND HIGH FREQUENCY HEARING OF NAVAL AVIATION OFFICER CANDIDATES.
AD- 766 498

•NAVAL AIR ENGINEERING CENTER LAKEHURST N J GROUND SUPPORT EQUIPMENT DEPT

• • •

NAEC-GSED-96-VOL-1
EXPERIMENTAL EVALUATION OF NAS MIRAMAR HUSH HOUSE (PROJECT P-114). VOLUME I.
AD-A024 403

• • •

NAEC-GSED-96-VOL-2
EXPERIMENTAL EVALUATION OF NAS MIRAMAR HUSH HOUSE (PROJECT P-114). VOLUME II.
AD-A024 404

•NAVAL AIR PROPULSION TEST CENTER TRENTON N J PROPULSION TECHNOLOGY AND PROJECT ENGINEERING DEPT

• • •

NAPTC-PE-6
STATE-OF-THE-ART REVIEW OF TURBINE ENGINE INLET NOISE.
AD- 753 000

•NAVAL ELECTRONICS LAB CENTER SAN DIEGO CALIF

• • •

NELC-TR-1762
NOISE LEVELS ON AIRCRAFT-CARRIER FLIGHT DECKS, AND THEIR EFFECTS.
AD- 729 067

•NAVAL POSTGRADUATE SCHOOL MONTEREY CALIF

• • •

NPS-61MD72051A
FREQUENCY DEPENDENCE OF SOUND TRANSMITTED FROM AN AIRBORNE SOURCE INTO THE OCEAN,
AD- 744 590

•NAVAL TRAINING DEVICE CENTER ORLANDO FLA

• • •

NAVTRADEVCEN-151-1-15
THE EFFECTS OF ULTRASONIC VIBRATIONS ON MAN.
AD- 639 363

•NAVAL TRAINING DEVICE CENTER PORT

WASHINGTON N Y

• • •

SPECDEVCEN-104-2-4
AN EXPERIMENTAL COMPARISON OF 5 CONDITIONS FOR VOICE COMMUNICATION TRAINING.
AD- 638 355

•NAVY MEDICAL NEUROPSYCHIATRIC RESEARCH UNIT SAN DIEGO CALIF

• • •

NMNRU-71-49
AUTONOMIC RESPONSES TO AIRCRAFT NOISE IN DYSLEXIC CHILDREN.
AD- 737 926

•PATROL ASW DEVELOPMENT GROUP NORFOLK VA

• • •

PATASWDEVGRU-44
P-3C AMBIENT AIRCRAFT NOISE.
AD- 888 802

•PRATT AND WHITNEY AIRCRAFT EAST HARTFORD CONN

• • •

PWA-4154
FAN-COMPRESSOR NOISE: PREDICTION, RESEARCH, AND REDUCTION STUDIES.
(FAA-RD-71-73)
AD- 733 590

•PRINCETON UNIV N J DEPT OF AEROSPACE AND MECHANICAL SCIENCES

• • •

RESEARCH ON NOISE GENERATED BY DUCTED AIR-FUEL COMBUSTION SYSTEMS.
AD- 754 094

• • •

RESEARCH ON NOISE GENERATED BY DUCTED AIR-FUEL COMBUSTION SYSTEMS.
AD- 767 337

• • •

RESEARCH ON NOISE GENERATED BY DUCTED AIR-FUEL COMBUSTION SYSTEMS.
AD- 785 028

• • •

RESEARCH ON NOISE GENERATED BY DUCTED AIR-FUEL COMBUSTION SYSTEMS.
AD-A015 688

• • •

AMS-1092
NOISE GENERATION BY CYLINDRICAL SPOILERS IMMERSED IN AN AIR DUCT.
AD- 767 336

• • •

AMS-1327
RESEARCH ON NOISE GENERATED BY DUCTED AIR-FUEL COMBUSTION SYSTEMS.
AD-A039 957

•PSYCHOLOGICAL CORP NEW YORK

• • •

THE EFFECTS OF ULTRASONIC VIBRATIONS ON MAN.
(NAVTRADEVCEN-151-1-15)
AD- 639 363

•PURDUE UNIV LAFAYETTE IND

• • •

4
AN EXPERIMENTAL COMPARISON OF 5 CONDITIONS FOR VOICE COMMUNICATION TRAINING.
(SPECDEVCEN-104-2-4)
AD- 638 355

•RAND CORP SANTA MONICA CALIF

• • •

P-4083
SOME PROJECTED EFFECTS OF JET NOISE ON RESIDENTIAL PROPERTY NEAR LOS ANGELES INTERNATIONAL AIRPORT BY 1970.
AD- 688 478

• • •

P-4117
INDICATORS OF THE EFFECT OF JET NOISE ON THE VALUE OF REAL ESTATE.
AD- 690 827

• • •

RM-5268-PR
AIR TRANSPORTATION IN THE 1970'S: PROBLEMS AND OPPORTUNITIES.
AD- 664 040

•SANTA CLARA UNIV CALIF

• • •

THE ROAR, THE WHINE, THE BOOM AND THE LAW: SOME LEGAL CONCERNS ABOUT THE SST.
AD- 698 398

•SCHOOL OF AEROSPACE MEDICINE BROOKS AFB TEX

• • •

SAM-TR-69-44
EVALUATION OF CANINE EAR DEFENDERS.
AD- 697 377

• • •

SAM-TR-69-83
NOISE GENERATED BY SECONDARY AND AUXILIARY AIRCRAFT SYSTEMS.
AD- 702 101

• • •

SAM-TR-69-87
NOISE ENCOUNTERED IN ROTARY-WING AIRCRAFT.
AD- 702 422

• • •

SAM-TR-70-21
COCKPIT NOISE EXPOSURES ASSOCIATED WITH THE OPERATION OF FIXED-AND ROTARY-WING AIRCRAFT.
AD- 705 964

• • •

SAM-TR-70-26
NOISE ENVIRONMENTS WITHIN MULTIPLACE FIXED-WING AIRCRAFT.
AD- 708 430

• • •

SAM-TR-70-27
AIRSPEED INFLUENCE ON NOISE WITHIN FIXED- AND ROTARY-WING AIRCRAFT.
AD- 711 359

• • •

SAM-TR-70-51
NOISE ASSOCIATED WITH OPERATION OF AIR FORCE OV-10A AIRCRAFT.
AD- 712 667

• • •

SAM-TR-70-63
NOISE ASSOCIATED WITH OPERATION OF THE C-9A (AEROMEDICAL EVACUATION) AIRCRAFT.
AD- 715 222

• • •

SAM-TR-70-68
STATUS OF PURE-TONE AUDIOMETRY

IN USAF HEARING PROGRAMS.
AD- 717 846

• • •

SAM-TR-70-72
SIX INDICES FOR PREDICTING SPEECH INTERFERENCE WITHIN AIRCRAFT.
AD- 718 098

• • •

SAM-TR-70-74
NOISE ASSOCIATED WITH AIRBORNE OPERATION OF C-141A AIRCRAFT.
AD- 718 097

• • •

SAM-TR-70-95
COCKPIT NOISE WITHIN TRAINER AIRCRAFT.
AD- 717 852

• • •

SAM-TR-71-12
BIOACOUSTIC NOISE PROBLEMS DURING OPERATION OF C-7A CARIBOU AIRCRAFT.
AD- 738 627

• • •

SAM-TR-71-19
NOISE WITHIN THE F-4E DURING GROUND AND AIRBORNE OPERATIONS.
AD- 731 092

• • •

SAM-TR-71-22
NOISE ASSOCIATED WITH T-41A AND T-41C TRAINER AIRCRAFT.
AD- 731 128

• • •

SAM-TT-R-1001-0169
STANDARDIZATION OF AVIATION NOISE STRESS.
AD- 691 053

•SCHOOL OF AVIATION MEDICINE RANDOLPH AFB TEX

• • •

REVIEW-4-59
AN EVALUATION OF PATIENTS SUSPECTED OF HAVING NOISE-INDUCED HEARING LOSS.
AD- 619 409

•SOCIETY OF AUTOMOTIVE ENGINEERS INC NEW YORK

• • •

NOISE EXPOSURE FORECASTS FOR LOS ANGELES INTERNATIONAL AIRPORT.
(FAA-ADS-67-17)
AD- 660 702

• • •

NOISE EXPOSURE FORECASTS FOR J. F. KENNEDY INTERNATIONAL AIRPORT.
(FAA-ADS-67-15)
AD- 660 703

• • •

NOISE EXPOSURE FORECASTS FOR O'HARE INTERNATIONAL AIRPORT.
(FAA-ADS-67-16)
AD- 660 704

• • •

TECHNIQUE FOR DEVELOPING NOISE EXPOSURE FORECASTS.
(FAA-ADS-67-14)
AD- 660 705

• • •

SAE-R-12-1
AN EVALUATION OF PSYCHOACOUSTIC PROCEDURES FOR DETERMINING HUMAN RESPONSE TO AIRCRAFT NOISE. VOLUME I. SPECIFICATIONS FOR FOUR EXPERIMENTS.
(FAA-RD-72-51-VOL-1)
AD- 770 185

• • •

SAE-R-12-2
AN EVALUATION OF PSYCHOACOUSTIC PROCEDURES FOR DETERMINING HUMAN NOISE: VOLUME II. DEMONSTRATED EXAMPLES.
(FAA-RD-72-51-VOL-2)
AD- 770 244

•STANFORD RESEARCH INST MENLO PARK CALIF SENSORY SCIENCES RESEARCH CENTER

• • •

COMPARISONS BETWEEN SUBJECTIVE RATINGS OF AIRCRAFT NOISE AND VARIOUS OBJECTIVE MEASURES.
(FAA-NO-68-33)
AD- 673 682

•SYSTEMS ANALYSIS AND RESEARCH CORP BOSTON MASS

• • •

XG-489-67
AIR TRAFFIC GROWTH, AIRLINE FINANCES, AND PUBLIC BENEFITS IN RELATION TO THE COST OF NEW PROGRAMS TO ALLEVIATE JET AIRCRAFT NOISE NEAR AIRPORTS.
AD- 647 393

•SYSTEMS ENGINEERING GROUP WRIGHT-PATTERSON AFB OHIO

• • •

SEG-TR-67-57
GUIDELINES FOR ESTABLISHING INTERIOR NOISE LEVEL CRITERIA FOR AIR FORCE AIRCRAFT.
AD- 670 165

•TACTICAL AIR COMMAND LANGLEY AFB VA OFFICE OF OPERATIONS ANALYSIS

• • •

TAC-OA-TR-70-17
STOL TRANSPORT PARAMETERS (MILITARY AND COMMERCIAL) WITH SPECIAL EMPHASIS ON NOISE.
AD- 729 184

•TENNESSEE UNIV KNOXVILLE

• • •

AN ANALYSIS OF LIABILITY IN AIRCRAFT TRESPASS AND NUISANCE CASES SINCE 1958.
AD- 620 347

•TENNESSEE UNIV SPACE INST TULLAHOMA

• • •

LOW SPEED AERODYNAMICS FOR ULTRA-QUIET FLIGHT.
(AFFDL-TR-71-75)
AD- 893 426

• • •

INVESTIGATION OF FEASIBLE NOZZLE CONFIGURATIONS FOR NOISE REDUCTION IN TURBOFAN AND TURBOJET AIRCRAFT. VOLUME I. SUMMARY AND MULTINOZZLE CONFIGURATIONS.
(FAA-RD-75-162-1)
AD-A024 958

• • •

INVESTIGATION OF FEASIBLE NOZZLE CONFIGURATIONS FOR NOISE REDUCTION IN TURBOFAN AND TURBOJET

AIRCRAFT. VOLUME II. SLOT NOZZLE CONFIGURATION.
(FAA-RD-75-162-2)
AD-A024 959

• • •

INVESTIGATION OF FEASIBLE NOZZLE CONFIGURATIONS FOR NOISE REDUCTION IN TURBOFAN AND TURBOJET AIRCRAFT. VOLUME III. SHROUDED SLOT NOZZLE CONFIGURATIONS.
(FAA-RD-75-162-3)
AD-A041 782

•TEXAS UNIV AT AUSTIN APPLIED RESEARCH LABS

• • •

NONLINEAR PROPAGATION DISTORTION OF JET NOISE.
(AFOSR-TR-76-0976)
AD-A029 575

•TRACOR SCIENCES AND SYSTEMS AUSTIN TEX

• • •

TRACOR-T75-AU-9531-U
AIRPORT NOISE MONITORING SYSTEMS.
(FAA-RD-75-216)
AD-A028 511

•TRANSPORTATION CONSULTANTS INC WASHINGTON D C

• • •

COMPATIBLE LAND USE PLANNING ON AND AROUND AIRPORTS.
AD- 650 267

• • •

AIDS AVAILABLE FOR COMPATIBLE LAND USE PLANNING AROUND AIRPORTS.
AD- 650 271

•ULTRASYSTEMS INC NEWPORT BEACH CALIF

• • •

THE EFFECTS OF LOCAL METEOROLOGICAL FACTORS UPON AIRCRAFT NOISE MEASUREMENTS.
(FAA-RD-72-145)
AD- 754 270

•UNITED TECHNOLOGIES CORP WINDSOR LOCKS CONN HAMILTON STANDARD DIV

• • •

A COMPREHENSIVE REVIEW OF HELICOPTER NOISE LITERATURE.
(FAA-RD-75-79)
AD-A014 640

• • •

V/STOL ROTARY PROPULSION SYSTEMS - NOISE PREDICTION AND REDUCTION. VOLUME III. COMPUTER PROGRAM USER'S MANUAL.
(FAA-RD-76-49-VOL-3)
AD-A027 363

• • •

V/STOL ROTARY PROPULSION SYSTEMS NOISE PREDICTION AND REDUCTION. VOLUME I. IDENTIFICATION OF SOURCES, NOISE GENERATING MECHANISMS, NOISE REDUCTION MECHANISMS, AND PREDICTION METHODOLOGY.
(FAA-RD-76-49.1)
AD-A027 389

• • •

V/STOL ROTARY PROPULSION SYSTEMS NOISE PREDICTION AND REDUCTION. VOLUME II. GRAPHICAL PREDICTION METHODS.
(FAA-RD-76-49.2)
AD-A027 390

•UNITED TECHNOLOGIES RESEARCH CENTER EAST HARTFORD CONN

• • •

UTRC/R77-912607-11
AIRFRAME NOISE PREDICTION METHOD.
(FAA-RD-77-29)
AD-A039 664

•WESTERN ELECTRO-ACOUSTIC LAB INC LOS ANGELES CALIF

• • •

M22
ACOUSTICAL EVALUATION OF TYPE II AIRCRAFT GROUND RUNUP NOISE SUPPRESSOR AT TRUAX AIR FORCE BASE, WISCONSIN
(AMRL-MEMO-M-22)
AD- 294 189

•WYLE LABS EL SEGUNDO CALIF

• • •

FAR FIELD NOISE GENERATION BY COAXIAL FLOW JET EXHAUSTS. VOLUME II. COMPILATION OF TEST RESULTS.
(FAA-RD-71-101-2)
AD- 748 039

• • •

WR-71-19
PREDICTION METHODS FOR NEAR FIELD NOISE ENVIRONMENTS OF VTOL AIRCRAFT.
(AFFDL-TR-71-180)
AD- 900 405

•WYLE LABS HAMPTON VA

• • •

CORRELATION OF ACTUAL AND ANALYTICAL HELICOPTER AURAL DETECTION CRITERIA. VOLUME I.
(USAAMRDL-TR-14-102A)
AD-B002 067

•WYLE LABS HUNTSVILLE ALA

• • •

WR-69-17
THE NOISINESS OF DIFFUSE SOUND FIELDS AT HIGH INTENSITIES.
(FAA-70-3)
AD- 708 816

•WYLE LABS INC HUNTSVILLE ALA
RESEARCH STAFF

• • •

SUBJECTIVE EVALUATION OF GENERAL AVIATION AIRCRAFT NOISE.
(FAA-NO-68-35)
AD- 673 987

• • •

NOISE PRIMER FOR THE SUPERSONIC TRANSPORT.
AD- 721 010

•ACOUSTIC ATTENUATION
ACOUSTIC ATTENUATION BY VAPORIZATION OF LIQUID DROPLETS -- APPLICATION TO NOISE REDUCTION IN AIRCRAFT POWERPLANTS.•
AD-A009 694

•ACOUSTIC DETECTION
A TECHNIQUE FOR MEASURING THE EXTERNAL NOISE OF A MOVING HELICOPTER.•
AD- 773 687

•ACOUSTIC EMISSIONS
ACOUSTIC EMISSION STRUCTURE-BORNE NOISE MEASUREMENTS ON AIRCRAFT DURING FLIGHT.•
AD-A033 188

•ACOUSTIC FIELDS
NONLINEAR PROPAGATION DISTORTION OF JET NOISE.•
AD-A029 575

•ACOUSTIC INSULATION
CONSTRAINED LAYER TREATMENTS FOR NOISE CONTROL IN A HELICOPTER.•
AD- 783 234

HOUSING(DWELLINGS)
A STUDY--INSULATING HOUSES FROM AIRCRAFT NOISE.•
AD- 666 376

•ACOUSTIC MEASUREMENT
AIRCRAFT NOISE DEFINITION.•
AD-A012 384
AIRPORT NOISE MONITORING SYSTEMS.•
AD-A028 511
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 58. U-10B IN-FLIGHT CREW NOISE.•
AD-A033 641
USAF BIOENVIRONMENTAL NOISE DATA. VOLUME 59. QU-22B IN-FLIGHT CREW NOISE.•
AD-A033 642
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 64. B-52G AIRCRAFT. NEAR AND FAR-FIELD NOISE.•
AD-A033 643
HIGH VELOCITY JET NOISE SOURCE LOCATION AND REDUCTION. TASK 1. ACTIVATION OF FACILITIES AND VALIDATION OF SOURCE LOCATION TECHNIQUES.•
AD-A041 848
HIGH VELOCITY JET NOISE SOURCE LOCATION AND REDUCTION. TASK 4. DEVELOPMENT/EVALUATION OF TECHNIQUES FOR 'INFLIGHT' INVESTIGATION.•
AD-A041 849

•ACOUSTIC RANGES
DESIGN
GRUMMAN JET NOISE FACILITY.•
AD- 759 862

•ACOUSTIC SIGNALS
AUDITORY PERCEPTION
DESCRIPTIONS OF FLYOVER NOISE SIGNALS PRODUCED BY VARIOUS JET TRANSPORT AIRCRAFT.•
AD- 657 633

•ACOUSTICS
MODEL STUDY OF A PROPOSED ENGINEERING ACOUSTIC RESEARCH FACILITY.
AD-A030 639

JET ENGINE NOISE
NEARFIELD INFRASONIC NOISE GENERATED BY THREE TURBOJET AIRCRAFT DURING GROUND RUNUP OPERATIONS.
AD- 623 086

•AERODYNAMIC NOISE
REPRINT: BROADBAND AND DISCRETE FREQUENCY RADIATION FROM SUBSONIC ROTORS.
AD-A006 779
JET NOISE: A SURVEY AND A PREDICTION FOR SUBSONIC FLOWS.•
AD-A013 794
INVESTIGATION OF FEASIBLE NOZZLE CONFIGURATIONS FOR NOISE REDUCTION IN TURBOFAN AND TURBOJET AIRCRAFT. VOLUME I. SUMMARY AND MULTINOZZLE CONFIGURATIONS.•
AD-A024 958
INVESTIGATION OF FEASIBLE NOZZLE CONFIGURATIONS FOR NOISE REDUCTION IN TURBOFAN AND TURBOJET AIRCRAFT. VOLUME II. SLOT NOZZLE CONFIGURATION.•
AD-A024 959
INVESTIGATION OF FEASIBLE NOZZLE CONFIGURATIONS FOR NOISE REDUCTION IN TURBOFAN AND TURBOJET AIRCRAFT. VOLUME III. SHROUDED SLOT NOZZLE CONFIGURATIONS.•
AD-A041 782

REDUCTION
LOW SPEED AERODYNAMICS FOR ULTRA-QUIET FLIGHT.•
AD- 893 426

SPOILERS
NOISE GENERATION BY CYLINDRICAL SPOILERS IMMERSED IN AN AIR DUCT.•
AD- 767 336

•AEROTHERMODYNAMICS
EXPERIMENTAL EVALUATION OF NAS MIRAMAR HUSH HOUSE (PROJECT P-114). VOLUME I.•
AD-A024 403
EXPERIMENTAL EVALUATION OF NAS MIRAMAR HUSH HOUSE (PROJECT P-114). VOLUME II.•
AD-A024 404

•AIR FORCE FACILITIES
COMMUNITY NOISE SURVEY-OFFUTT AFB. NEBRASKA.•
AD- 784 841

•AIR FORCE PERSONNEL
AUDITORY PERCEPTION
STATUS OF PURE-TONE AUDIOMETRY IN USAF HEARING PROGRAMS.•
AD- 717 846

HEARING
EVALUATION OF PATIENTS SUSPECTED OF HAVING NOISE-INDUCED HEARING LOSS.

AD- 619 409

*AIR POLLUTION
TURBOJET ENGINES
NOISE AND AIR POLLUTION EMISSIONS FROM NOISE SUPPRESORS FOR ENGINE TEST STANDS AND AIRCRAFT POWER CHECK PADS.*
AD- 757 862

*AIR TRAFFIC
AIRPORTS
A SUGGESTED ACTION PROGRAM FOR THE RELIEF OF AIRFIELD CONGESTION AT SELECTED AIRPORTS,*
AD- 689 107

*AIR TRAFFIC CONTROL SYSTEM ANALYSIS
TECHNICAL BACKGROUND: INTERIM CRITERIA FOR PLANNING ROTARY-WING AIRCRAFT TRAFFIC PATTERNS, AND SITING NOISE-SENSITIVE LAND USES.*
AD-A031 449
USER MANUAL: INTERIM PROCEDURE FOR PLANNING ROTARY-WING AIRCRAFT TRAFFIC PATTERNS AND SITING NOISE-SENSITIVE LAND USES.*
AD-A031 450

*AIR TRANSPORTATION
PREDICTIONS
AIR TRANSPORTATION IN THE 1970'S: PROBLEMS AND OPPORTUNITIES,*
AD- 664 040

*AIRCRAFT CABINS
CONSTRAINED LAYER TREATMENTS FOR NOISE CONTROL IN A HELICOPTER.*
AD- 783 234

AIRCRAFT NOISE
GUIDELINES FOR ESTABLISHING INTERIOR NOISE LEVEL CRITERIA FOR AIR FORCE AIRCRAFT,*
AD- 670 165

*AIRCRAFT DETECTION
AUDITORY PERCEPTION
CORRELATION OF ACTUAL AND ANALYTICAL HELICOPTER AURAL DETECTION [illegible] CRIA. VOLUME [illegible]
AD-B002 067

*AIRCRAFT ENGINE NOISE
INVESTIGATION OF AIRCRAFT COMBUSTOR NOISE.*
AD-A001 737
MINI RPV ENGINE NOISE REDUCTION.*
AD-A027 638
COMBUSTION NOISE INVESTIGATION.*
AD-A038 154

*AIRCRAFT LANDINGS
JET PLANE NOISE
MEASUREMENT AND ANALYSIS OF NOISE FROM FOUR AIRCRAFT IN LEVEL FLIGHT (727, KC-135, 707-3208 AND DC-9).*
AD- 739 870
NOISE MEASUREMENTS DURING APPROACH OPERATIONS ON RUNWAY 21R AT DETROIT METROPOLITAN AIRPORT.*
AD- 740 642

*AIRCRAFT NOISE
B-58 FLIGHT LINE AND MAINTENANCE HANGAR NOISE SURVEY (CARSWELL AFB, TEXAS)*
AD- 261 500
EVALUATION OF AIRPORT NOISE AND COMMUNITY REACTION*
AD- 263 053
AN EVALUATION OF PSYCHOACOUSTIC PROCEDURES FOR DETERMINING HUMAN RESPONSE TO AIRCRAFT NOISE. VOLUME I. SPECIFICATIONS FOR FOUR EXPERIMENTS.*
AD- 770 185
AN EVALUATION OF PSYCHOACOUSTIC PROCEDURES FOR DETERMINING HUMAN NOISE: VOLUME II. DEMONSTRATED EXAMPLES.*
AD- 770 244
DC-9 NOISE RETROFIT FEASIBILITY. VOLUME I. LOWER GOAL NOISE, PERFORMANCE AND COST EVALUATION.*
AD- 776 127
TECHNICAL EVALUATION REPORT ON FLUID DYNAMICS PANEL SPECIALISTS MEETING ON NOISE MECHANISMS.*
AD- 776 655
STOL NOISE PREDICTION AND ATTENUATION MODELS IN SUPPORT OF REGULATORY EFFORT.*
AD- 777 569
CONSTRAINED LAYER TREATMENTS FOR NOISE CONTROL IN A HELICOPTER.*
AD- 783 234
COMMUNITY NOISE SURVEY-OFFUTT AFB, NEBRASKA,*
AD- 784 841
COMMUNITY NOISE EXPOSURE RESULTING FROM AIRCRAFT OPERATIONS: COMPUTER PROGRAM OPERATOR'S MANUAL.*
AD- 785 360
AIRCRAFT SOUND DESCRIPTION SYSTEM (ASDS) APPLICATION PROCEDURES. VOLUME I. OVERVIEW,*
AD- 786 612
AIRCRAFT SOUND DESCRIPTION SYSTEM (ASDS) APPLICATION PROCEDURES. VOLUME II. MANUAL APPLICATION PROCEDURES,*
AD- 786 613
AIRCRAFT SOUND DESCRIPTION SYSTEM (ASDS) APPLICATION PROCEDURES. VOLUME IV. COMPUTER APPLICATION PROCEDURES,*
AD- 786 615
COMMUNITY NOISE EXPOSURE RESULTING FROM AIRCRAFT OPERATIONS: APPLICATION GUIDE FOR PREDICTIVE PROCEDURE.*
AD-A004 818
COMMUNITY NOISE EXPOSURE RESULTING FROM AIRCRAFT OPERATIONS: COMPUTER PROGRAM DESCRIPTION.*
AD-A004 821
REPRINT: BROADBAND AND DISCRETE FREQUENCY RADIATION FROM SUBSONIC ROTORS.
AD-A006 779
AIRCRAFT NOISE GENERATION, EMISSION AND REDUCTION.*
AD-A012 090
AIRCRAFT NOISE DEFINITION.*
AD-A012 384
BOEING AIRPLANE/NOISE PERFORMANCE COMPUTER PROGRAM. USER'S MANUAL.*

AD-A012 385
AIRCRAFT NOISE DEFINITION - INDIVIDUAL AIRCRAFT TECHNICAL DATA-- MODEL 727.•

AD-A013 177
ACOUSTIC NOISE SUPPRESSION IN AIRBORNE COMMUNICATIONS.•

AD-A013 365
AIRCRAFT SOUND DESCRIPTION SYSTEM (ASDS) APPLICATION PROCEDURES. VOLUME III. DATA TABLES.•

AD-A013 435
BOEING AIRPLANE/NOISE PERFORMANCE COMPUTER PROGRAM. PROGRAMMER'S MANUAL.•

AD-A013 768
A COMPREHENSIVE REVIEW OF HELICOPTER NOISE LITERATURE.•

AD-A014 690
AIRCRAFT NOISE DEFINITION. INDIVIDUAL AIRCRAFT TECHNICAL DATA- MODEL 707.•

AD-A014 692
EFFECT OF TEMPERATURE AND HUMIDITY ON AIRCRAFT NOISE PROPAGATION.•

AD-A014 694
AIRCRAFT NOISE DEFINITION. INDIVIDUAL AIRCRAFT TECHNICAL DATA MODEL - 737.•

AD-A014 964
AIRCRAFT NOISE DEFINITION. PHASE I. ANALYSIS OF EXISTING DATA FOR THE DC-8, DC-9 AND DC-10 AIRCRAFT.•

AD-A016 278
ANALYSIS OF THE EFFECT OF CONCORDE AIRCRAFT NOISE ON HISTORIC STRUCTURES.•

AD-A017 082
COMMUNITY NOISE EXPOSURE RESULTING FROM AIRCRAFT OPERATIONS: ACQUISITION AND ANALYSIS OF AIRCRAFT NOISE AND PERFORMANCE DATA.•

AD-A017 741
NOISE CERTIFICATION CRITERIA AND IMPLEMENTATION CONSIDERATIONS FOR V/STOL AIRCRAFT. VOLUME I.•

AD-A018 036
AIRCRAFT NOISE DEFINITION. PHASE II. ANALYSIS OF FLYOVER-NOISE DATA FOR THE DC-8-61 AIRCRAFT.•

AD-A019 759
REVIEW OF STUDIES INVESTIGATING HUMAN RESPONSE TO COMMERCIAL AIRCRAFT NOISE.•

AD-A022 356
COMMUNITY NOISE EXPOSURE RESULTING FROM AIRCRAFT OPERATIONS. APPENDIX I NOISEMAP PROGRAM OPERATOR'S MANUAL.•

AD-A022 911
DEVELOPING NOISE EXPOSURE CONTOURS FOR GENERAL AVIATION AIRPORTS.•

AD-A023 429
EXPERIMENTAL EVALUATION OF NAS MIRAMAR HUSH HOUSE (PROJECT P-114). VOLUME I.•

AD-A024 403
EXPERIMENTAL EVALUATION OF NAS MIRAMAR HUSH HOUSE (PROJECT P-114). VOLUME II.•

AD-A024 404
IN-FLIGHT FAR-FIELD MEASUREMENT OF HELICOPTER IMPULSIVE NOISE.•

AD-A025 979
A NEW CAPABILITY FOR PREDICTING HELICOPTER ROTOR NOISE IN HOVER AND IN FLIGHT.•

AD-A025 982
TEST PLAN FOR AIRCRAFT RUNUP NOISE PENALTY EVALUATION.•

AD-A026 209
SENSITIVITY STUDIES OF COMMUNITY-AIRCRAFT NOISE EXPOSURE (NOISEMAP) PREDICTION PROCEDURE.•

AD-A026 535
V/STOL ROTARY PROPULSION SYSTEMS - NOISE PREDICTION AND REDUCTION. VOLUME III. COMPUTER PROGRAM USER'S MANUAL.•

AD-A027 363
V/STOL ROTARY PROPULSION SYSTEMS NOISE PREDICTION AND REDUCTION. VOLUME I. IDENTIFICATION OF SOURCES, NOISE GENERATING MECHANISMS, NOISE REDUCTION MECHANISMS, AND PREDICTION METHODOLOGY.•

AD-A027 389
V/STOL ROTARY PROPULSION SYSTEMS NOISE PREDICTION AND REDUCTION. VOLUME II. GRAPHICAL PREDICTION METHODS.•

AD-A027 390
AIRPORT NOISE MONITORING SYSTEMS.•

AD-A028 511
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 31. B-52H IN-FLIGHT CREW NOISE.•

AD-A029 605
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 32. KC-135A IN-FLIGHT CREW NOISE.•

AD-A029 606
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 33. C-131B IN-FLIGHT CREW NOISE.•

AD-A029 607
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 34. VC-118A IN-FLIGHT CREW/PASSENGER NOISE.•

AD-A029 608
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 35. T-39B IN-FLIGHT CREW/PASSENGER NOISE.•

AD-A029 609
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 37. F-4D IN-FLIGHT CREW NOISE.•

AD-A029 610
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 42. EC-135H IN-FLIGHT CREW NOISE.•

AD-A029 613
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 45. F-111E IN-FLIGHT CREW NOISE.•

AD-A029 614
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 46. O-2A IN-FLIGHT CREW NOISE.•

AD-A029 615
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 47. O-2B IN-FLIGHT CREW NOISE.•

AD-A029 616
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 48. T-33A IN-FLIGHT CREW NOISE.•

AD-A029 617
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 49. T-34A IN-FLIGHT CREW NOISE.•

AD-A029 618
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 50. HH-43B IN-FLIGHT CREW NOISE.•

AD-A029 619
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 51. HH-53C IN-FLIGHT CREW NOISE.•

AD-A029 620
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 52. A-1E IN-FLIGHT CREW NOISE.•

AD-A029 621
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 53. AC-119G IN-FLIGHT CREW NOISE.•

AD-A029 622
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 54. C-123K IN-FLIGHT CREW NOISE.•

AD-A029 623
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 55. AC-130A IN-FLIGHT CREW NOISE.•

AD-A029 624
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 56. HC-130N IN-FLIGHT CREW NOISE.•

AD-A029 625
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 57. T-28D-5 IN-FLIGHT CREW NOISE.•

AD-A029 626
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 60. UH-1N IN-FLIGHT CREW NOISE.•

AD-A029 627
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 61. HH-3E IN-FLIGHT CREW NOISE.•

AD-A029 628
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 62. C-5A IN-FLIGHT CREW/PASSENGER NOISE.•

AD-A029 629
AIRCRAFT CONFIGURATION NOISE REDUCTION. VOLUME I. ENGINEERING ANALYSIS.•

AD-A030 655
AIRCRAFT CONFIGURATION NOISE REDUCTION. VOLUME II. COMPUTER PROGRAM USER'S GUIDE AND OTHER APPENDICES.•

AD-A030 656
AIRCRAFT CONFIGURATION NOISE REDUCTION. VOLUME III. COMPUTER PROGRAM SOURCE LISTING.•

AD-A030 657
TECHNICAL BACKGROUND: INTERIM CRITERIA FOR PLANNING ROTARY-WING AIRCRAFT TRAFFIC PATTERNS, AND SITING NOISE-SENSITIVE LAND USES.•

AD-A031 949
USER MANUAL: INTERIM PROCEDURE FOR PLANNING ROTARY-WING AIRCRAFT TRAFFIC PATTERNS AND SITING NOISE-SENSITIVE LAND USES.•

AD-A031 450
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME I. ORGANIZATION, CONTENT AND APPLICATION.•

AD-A031 865
ACOUSTIC EMISSION STRUCTURE-BORNE NOISE MEASUREMENTS ON AIRCRAFT DURING FLIGHT.•

AD-A033 188
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 58. U-10B IN-FLIGHT CREW NOISE.•

AD-A033 641
USAF BIOENVIRONMENTAL NOISE DATA. VOLUME 59. QU-22B IN-FLIGHT CREW NOISE.•

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USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 64. B-52G AIRCRAFT, NEAR AND FAR-FIELD NOISE.•

AD-A033 643
FAA INTEGRATED NOISE MODEL USER'S GUIDE.•

AD-A035 062
REPRINT: DEVELOPMENT OF A UNIFORM APPROACH TO CHARACTERIZE NOISE IMPACT ON PEOPLE.

AD-A036 224
FAA INTEGRATED NOISE MODEL DATA BASE.•

AD-A036 723
HELICOPTER NOISE REDUCTION DESIGN TRADE-OFF STUDY.•

AD-A038 192
AIRFRAME NOISE PREDICTION METHOD.•

AD-A039 664
PHYSICAL ANALYSIS OF THE IMPULSIVE ASPECTS OF HELICOPTER NOISE.•

AD-A039 715
HELICOPTER NOISE MEASUREMENTS DATA REPORT. VOLUME I. HELICOPTER MODELS: HUGHES 300-C. HUGHES 500-C, BELL 47-G. BELL 206L.•

AD-A040 561
HELICOPTER NOISE MEASUREMENTS DATA REPORT. VOLUME II. HELICOPTER MODELS: BELL 212 (UH-1N), SIKORSKY S-61 (SH-3A), SIKORSKY S-64 'SKYCRANE' (CH-54B), BOEING VERTOL 'CHINOOK' (CH-47C).•

AD-A040 562
VALIDATION OF AIRCRAFT NOISE EXPOSURE PREDICTION PROCEDURE.•

AD-A041 674
FURTHER SENSITIVITY STUDIES OF COMMUNITY-AIRCRAFT NOISE EXPOSURE (NOISEMAP) PREDICTION PROCEDURES.•

AD-A041 781
AIRCRAFT SIDELINE NOISE: A TECHNICAL REVIEW AND ANALYSIS OF CONTEMPORARY DATA.•

AD-A042 076

ACOUSTIC IMPEDANCE
ENGINEERING AND DEVELOPMENT PROGRAM PLAN - AIRCRAFT NOISE AND SONIC BOOM.•

AD- 768 847

AIRCRAFT CABINS
GUIDELINES FOR ESTABLISHING INTERIOR NOISE LEVEL CRITERIA FOR AIR FORCE AIRCRAFT.•

AD- 670 165

AIRPORTS
NOISE EXPOSURE FORECASTS FOR LOS ANGELES INTERNATIONAL AIRPORT.•

AD- 660 702

NOISE EXPOSURE FORECASTS FOR J. F. KENNEDY INTERNATIONAL AIRPORT.•
AD- 660 703

NOISE EXPOSURE FORECASTS FOR O'HARE INTERNATIONAL AIRPORT.•
AD- 660 704

TECHNIQUE FOR DEVELOPING NOISE EXPOSURE FORECASTS.•
AD- 660 705

EVALUATION OF HEARING LEVELS OF RESIDENTS LIVING NEAR A MAJOR AIRPORT.•
AD- 747 129

AIRCRAFT SOUND DESCRIPTION SYSTEM BACKGROUND AND APPLICATION.•
AD- 758 588

AIRSPEED
AIRSPEED INFLUENCE ON NOISE WITHIN FIXED- AND ROTARY-WING AIRCRAFT.•
AD- 711 359

ATTENUATION
TEST AND EVALUATION OF A QUIET HELICOPTER CONFIGURATION HH-43B.•
AD- 901 273

AUDITORY PERCEPTION
GROWTH OF NOISINESS FOR TONES AND BANDS OF NOISE AT DIFFERENT FREQUENCIES.•
AD- 663 904

SUBJECTIVE EVALUATION OF GENERAL AVIATION AIRCRAFT NOISE.•
AD- 673 987

AIRCRAFT NOISE EVALUATION.•
AD- 676 230

SIX INDICES FOR PREDICTING SPEECH INTERFERENCE WITHIN AIRCRAFT.•
AD- 718 098

ANALYSIS OF OPERATIONAL NOISE MEASUREMENTS IN TERMS OF SELECTED HUMAN RESPONSE NOISE EVALUATION MEASURES.•
AD- 741 149

PREDICTING AURAL DETECTABILITY OF AIRCRAFT IN NOISE BACKGROUNDS.•
AD- 902 828

AN EXPERIMENT IN AURAL DETECTION OF HELICOPTERS.•
AD- 917 355

BACKGROUND
THE EFFECTS OF DURATION AND BACKGROUND NOISE LEVEL ON PERCEIVED NOISEINESS.•
AD- 646 025

BIBLIOGRAPHIES
AIRCRAFT NOISE AND SONIC BOOM. SELECTED REFERENCES.•
AD- 699 915

COCKPITS
COCKPIT NOISE INTENSITY; FIFTEEN SINGLE-ENGINE LIGHT AIRCRAFT.•
AD- 686 673

COCKPIT NOISE INTENSITY; ELEVEN TWIN-ENGINE LIGHT AIRCRAFT.•
AD- 688 111

COCKPIT NOISE WITHIN TRAINER AIRCRAFT.•
AD- 717 852

EXPOSURE(PHYSIOLOGY)
COCKPIT NOISE EXPOSURES ASSOCIATED WITH THE OPERATION OF FIXED-AND ROTARY-WING AIRCRAFT.•
AD- 705 964

FLIGHT CREWS
CONVENTIONAL AND HIGH FREQUENCY HEARING OF NAVAL AIRCREWMEN AS A FUNCTION OF NOISE EXPOSURE.•
AD- 739 368

THE EFFECT OF NOISE EXPOSURE DURING PRIMARY FLIGHT TRAINING ON THE CONVENTIONAL AND HIGH FREQUENCY HEARING OF NAVAL AVIATION OFFICER CANDIDATES.•
AD- 766 498

HAZARDS
NOISE PROBLEMS ASSOCIATED WITH THE OPERATION OF US ARMY AIRCRAFT.•
AD- 421 567

HELICOPTERS
NOISINESS JUDGMENTS OF HELICOPTER FLYOVERS.•
AD- 648 503

NOISE ENCOUNTERED IN ROTARY-WING AIRCRAFT.•
AD- 702 422

CORRELATION OF ACTUAL AND ANALYTICAL HELICOPTER AURAL DETECTION CRITERIA. VOLUME I.•
AD-B002 067

INSTRUMENT LANDINGS
AN OPERATIONAL EVALUATION OF THE TWO-SEGMENT APPROACH FOR NOISE ABATEMENT.•
AD- 729 586

INTERFERENCE
THE SPEECH INTERFERENCE EFFECTS OF AIRCRAFT NOISE.•
AD- 660 712

SPEECH INTELLIGIBILITY TESTING WITH THE MODIFIED RHYME TEST IN AVIATION TYPE NOISE.•
AD- 765 470

JET FIGHTERS
NOISE ENVIRONMENTS OF CONTROL TOWERS.•
AD- 752 535

LEARNING
REPRINT: AUTONOMIC RESPONSES TO AIRCRAFT NOISE IN DYSLEXIC CHILDREN.•
AD- 737 926

MEASUREMENT
DISCUSSION OF THE UTILITY OF AVAILABLE TECHNIQUES FOR MEASURING AIRCRAFT NOISE AND PREDICTING COMMUNITY RESPONSE.•
AD- 638 491

COMPARISONS BETWEEN SUBJECTIVE RATINGS OF AIRCRAFT NOISE AND VARIOUS OBJECTIVE MEASURES.•
AD- 673 682

NOISE ENVIRONS AND HELMET PERFORMANCE FOR THE P-1127 V/STOL AIRCRAFT.•
AD- 686 736

MEASUREMENT AND ANALYSIS OF

BIOACOUSTIC ENVIRONMENTS ABOARD AC-119G AND AC-130A GUNSHIPS.•
AD- 699 593

MEASUREMENT AND ANALYSIS OF NOISE FROM SEVENTEEN AIRCRAFT IN LEVEL FLIGHT (MILITARY, BUSINESS JET, AND GENERAL AVIATION).•
AD- 741 248

PATROL AIRCRAFT
P-3C AMBIENT AIRCRAFT NOISE,•
AD- 888 802

PREDICTIONS
NOISE EXPOSURE FORECASTS: EVOLUTION, EVALUATION, EXTENSIONS, AND LAND USE INTERPRETATIONS.•
AD- 711 131

NOISE EXPOSURE FORECAST CONTOURS FOR 1967, 1970 AND 1975 OPERATIONS AT SELECTED AIRPORTS.•
AD- 712 646

PSYCHOACOUSTICS
THE EFFECTS OF TEMPORAL AND SPECTRAL COMBINATIONS ON THE JUDGED NOISINESS OF AIRCRAFT SOUNDS.•
AD- 712 734

PSYCHOPHYSICS
THE NOISINESS OF DIFFUSE SOUND FIELDS AT HIGH INTENSITIES.•
AD- 708 816

PUBLIC OPINION
ANALYSIS OF COMMUNITY AND AIRPORT RELATIONSHIPS/NOISE ABATEMENT.•
AD- 645 955

REACTION(PSYCHOLOGY)
SOME FACTORS INFLUENCING HUMAN RESPONSE TO AIRCRAFT NOISE: MASKING OF SPEECH AND VARIABILITY OF SUBJECTIVE JUDGMENTS.
AD- 617 935

REDUCTION
LOW SPEED AERODYNAMICS FOR ULTRA-QUIET FLIGHT.•
AD- 893 426

REVIEWS
NOISE GENERATED BY SECONDARY AND AUXILIARY AIRCRAFT SYSTEMS.•
AD- 702 101

SHORT TAKEOFF AIRCRAFT
NOISE ASSOCIATED WITH OPERATION OF AIR FORCE OV-10A AIRCRAFT.•
AD- 712 667

STATISTICAL DATA
RESULTS OF NOISE SURVEYS OF SEVENTEEN GENERAL AVIATION TYPE AIRCRAFT.•
AD- 759 212

STRESS(PHYSIOLOGY)
REPRINT: EXPERIMENTAL INVESTIGATIONS OF DISCOMFORT PRODUCED BY AIRPLANE NOISES.
AD- 689 086

BIOACOUSTIC NOISE PROBLEMS DURING OPERATION OF C-7A CARIBOU AIRCRAFT.•
AD- 738 627

SYMPOSIA
PRESENTATIONS AT NATIONAL AIRCRAFT NOISE SYMPOSIUM, JUNE, 1965.
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TERMINAL FLIGHT FACILITIES
STUDY OF NOISE IN AIR ROUTE TRAFFIC CONTROL CENTER, FLIGHT SERVICE STATION, AIR TRAFFIC CONTROL TOWER AND REMOTE FACILITIES.•
AD- 743 095

TRANSPORT AIRCRAFT
NOISE CONTOURS FOR SHORT AND MEDIUM RANGE TRANSPORT AIRCRAFT AND BUSINESS AIRCRAFT.
AD- 617 763

UNDERWATER SOUND
COMPUTER PROGRAMS FOR UNDERWATER SOUND FIELDS DUE TO AIRBORNE SOURCES.•
AD- 891 214

URBAN AREAS
ANALYSIS OF COMMUNITY AND AIRPORT RELATIONSHIPS/NOISE ABATEMENT. VOLUME I. AN APPROACH TO ANALYSIS OF AIRCRAFT NOISE PROBLEMS USING COMPUTER-AIDED TECHNIQUES.
AD- 618 190

ANALYSIS OF COMMUNITY AND AIRPORT RELATIONSHIPS NOISE ABATEMENT. VOLUME II. DEVELOPMENT OF AIRCRAFT NOISE COMPATIBILITY CRITERIA FOR VARIED LAND USES.
AD- 618 191

COMPATIBLE LAND USE PLANNING ON AND AROUND AIRPORTS.•
AD- 650 267

A STUDY--INSULATING HOUSES FROM AIRCRAFT NOISE.•
AD- 666 376

URBAN PLANNING
LAND USE PLANNING RELATING TO AIRCRAFT NOISE, APPENDIX A.
AD- 617 954

VERTICAL TAKEOFF AIRCRAFT
PREDICTION METHODS FOR NEAR FIELD NOISE ENVIRONMENTS OF VTOL AIRCRAFT.•
AD- 900 405

•AIRFRAMES
AIRFRAME NOISE PREDICTION METHOD.•
AD-A039 664

FATIGUE(MECHANICS)
EFFECTIVE SOURCE DISTRIBUTION IN A CHOKED SCREECH JET.•
AD- 727 345

•AIRPLANE ENGINE NOISE
B-58 FLIGHT LINE AND MAINTENANCE HANGAR NOISE SURVEY (CARSWELL AFB, TEXAS).•
AD- 261 500

AUDITORY SIGNALS
SONAR DETECTION OF SUBMARINES BY HELICOPTER.•

AD- 711 910

COCKPITS
COCKPIT NOISE EXPOSURES ASSOCIATED WITH THE OPERATION OF FIXED-AND ROTARY-WING AIRCRAFT.•
AD- 705 964

STATISTICAL ANALYSIS
NOISE ENVIRONMENTS WITHIN MULTIPLACE FIXED-WING AIRCRAFT.•
AD- 708 430

UNDERWATER SOUND
FREQUENCY DEPENDENCE OF SOUND TRANSMITTED FROM AN AIRBORNE SOURCE INTO THE OCEAN,•
AD- 744 590

URBAN AREAS
PRESENTATIONS AT NATIONAL AIRCRAFT NOISE SYMPOSIUM, JUNE, 1965.
AD- 619 282

URBAN PLANNING
LAND USE PLANNING RELATING TO AIRCRAFT NOISE.
AD- 615 015
LAND USE PLANNING RELATING TO AIRCRAFT NOISE, APPENDIX A.
AD- 617 954

VERTICAL TAKEOFF AIRCRAFT
EVALUATION OF NOISE PROBLEMS ANTICIPATED WITH FUTURE VTOL AIRCRAFT.•
AD- 658 498

•AIRPLANE NOISE
COMMERCIAL PLANES
RESEARCH STUDY OF COST EFFECTIVENESS OF AUXILIARY LAUNCH SYSTEMS APPLICABLE TO COMMERCIAL TRANSPORTS FOR PURPOSES OF NOISE ABATEMENT.•
AD- 732 264

REDUCTION
ACTIVE FILTERS APPLIED TO HELICOPTER NOISE REDUCTION.•
AD- 734 812

SHORT TAKE-OFF PLANES
STOL TRANSPORT PARAMETERS (MILITARY AND COMMERCIAL) WITH SPECIAL EMPHASIS ON NOISE.•
AD- 729 184

STRESS(PHYSIOLOGY)
EFFECT OF AVIATION NOISE ON SOME INDICES OF PROTEIN AND VITAMIN METABOLISM--TRANSLATION.
AD- 730 065

TRAINING PLANES
NOISE ASSOCIATED WITH T-41A AND T-41C TRAINER AIRCRAFT.•
AD- 731 128

•AIRPORT CONTROL TOWERS
NOISE
NOISE ENVIRONMENTS OF CONTROL TOWERS.•
AD- 752 535

•AIRPORTS
EVALUATION OF AIRPORT NOISE AND COMMUNITY REACTION•
AD- 263 053
AIRCRAFT SOUND DESCRIPTION SYSTEM (ASDS) APPLICATION PROCEDURES. VOLUME I. OVERVIEW.•
AD- 786 612
AIRCRAFT SOUND DESCRIPTION SYSTEM (ASDS) APPLICATION PROCEDURES. VOLUME II. MANUAL APPLICATION PROCEDURES.•
AD- 786 613
AIRCRAFT SOUND DESCRIPTION SYSTEM (ASDS) APPLICATION PROCEDURES. VOLUME IV. COMPUTER APPLICATION PROCEDURES.•
AD- 786 615
AIRCRAFT SOUND DESCRIPTION SYSTEM (ASDS) APPLICATION PROCEDURES. VOLUME III. DATA TABLES.•
AD-A013 435
DEVELOPING NOISE EXPOSURE CONTOURS FOR GENERAL AVIATION AIRPORTS.•
AD-A023 429
TEST PLAN FOR AIRCRAFT RUNUP NOISE PENALTY EVALUATION.•
AD-A026 209
AIRPORT NOISE MONITORING SYSTEMS.•
AD-A028 511
VALIDATION OF AIRCRAFT NOISE EXPOSURE PREDICTION PROCEDURE.•
AD-A041 674
FURTHER SENSITIVITY STUDIES OF COMMUNITY-AIRCRAFT NOISE EXPOSURE (NOISEMAP) PREDICTION PROCEDURES.•
AD-A041 781
AIRCRAFT SIDELINE NOISE: A TECHNICAL REVIEW AND ANALYSIS OF CONTEMPORARY DATA.•
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AIR TRAFFIC
A SUGGESTED ACTION PROGRAM FOR THE RELIEF OF AIRFIELD CONGESTION AT SELECTED AIRPORTS.•
AD- 689 107

AIRCRAFT NOISE
NOISE EXPOSURE FORECAST CONTOURS FOR 1967, 1970 AND 1975 OPERATIONS AT SELECTED AIRPORTS.•
AD- 712 696
EVALUATION OF HEARING LEVELS OF RESIDENTS LIVING NEAR A MAJOR AIRPORT.•
AD- 747 129
AIRCRAFT SOUND DESCRIPTION SYSTEM BACKGROUND AND APPLICATION.•
AD- 758 588

CIVIL AVIATION
AIR TRANSPORTATION ECONOMICS.
AD- 647 393

ENGINE NOISE
HELICOPTER NOISE CHARACTERISTICS FOR HELIPORT PLANNING.
AD- 617 764

JET ENGINE NOISE
NOISE EXPOSURE FORECASTS FOR LOS ANGELES INTERNATIONAL AIRPORT.•
AD- 660 702

NOISE EXPOSURE FORECASTS FOR J. F. KENNEDY INTERNATIONAL AIRPORT.•
AD- 660 703

NOISE EXPOSURE FORECASTS FOR O'HARE INTERNATIONAL AIRPORT.•
AD- 660 704

TECHNIQUE FOR DEVELOPING NOISE EXPOSURE FORECASTS.•
AD- 660 705

JET PLANE NOISE
NOISE EXPOSURE FORECAST CONTOUR INTERPRETATIONS OF AIRCRAFT NOISE TRADEOFF STUDIES.•
AD- 695 507

NOISE EXPOSURE FORECAST CONTOURS FOR AIRCRAFT NOISE TRADEOFF STUDIES AT THREE MAJOR AIRPORTS.•
AD- 710 525

NOISE MEASUREMENTS DURING APPROACH OPERATIONS ON RUNWAY 21R AT DETROIT METROPOLITAN AIRPORT.•
AD- 740 642

NOISE
ANALYSIS OF COMMUNITY AND AIRPORT RELATIONSHIPS/NOISE ABATEMENT.•
AD- 645 955

PLANNING
NOISE EXPOSURE FORECAST CONTOURS FOR EXPECTED 1985 AND 1990 OPERATIONS AT SEVEN U. S. AIRPORTS.•
AD- 722 365

PROBLEM SOLVING
AIDS AVAILABLE FOR COMPATIBLE LAND USE PLANNING AROUND AIRPORTS.•
AD- 650 271

URBAN AREAS
PROCEDURES FOR DEVELOPING NOISE EXPOSURE FORECAST AREAS FOR AIRCRAFT FLIGHT OPERATIONS.•
AD- 660 706

1965, 1970 AND 1975 NOISE EXPOSURE FORECAST AREAS FOR CHICAGO O'HARE INTERNATIONAL AIRPORT.•
AD- 660 708

1965, 1970 AND 1975 NOISE EXPOSURE FORECAST AREAS FOR LOS ANGELES INTERNATIONAL AIRPORT.•
AD- 660 709

1965, 1970 AND 1975 NOISE EXPOSURE FORECAST AREAS FOR JOHN F. KENNEDY AIRPORT, NEW YORK.•
AD- 660 710

SOME PROJECTED EFFECTS OF JET NOISE ON RESIDENTIAL PROPERTY NEAR LOS ANGELES INTERNATIONAL AIRPORT BY 1970.•
AD- 688 478

URBAN PLANNING
COMPATIBLE LAND USE PLANNING ON AND AROUND AIRPORTS.•
AD- 650 267

•AIRSPEED
AIRCRAFT NOISE
AIRSPEED INFLUENCE ON NOISE WITHIN FIXED- AND ROTARY-WING AIRCRAFT.•
AD- 711 359

•ANTISUBMARINE AIRCRAFT
AIRCRAFT NOISE
P-3C AMBIENT AIRCRAFT NOISE.•
AD- 888 802

•APPROACH
AIRCRAFT NOISE
AN OPERATIONAL EVALUATION OF THE TWO-SEGMENT APPROACH FOR NOISE ABATEMENT.•
AD- 724 586

JET PLANE NOISE
MEASUREMENT AND ANALYSIS OF NOISE FROM FOUR AIRCRAFT DURING APPROACH AND DEPARTURE OPERATIONS (727, KC-135, 707-320B, AND DC-9).•
AD- 740 563

•ARMY
A STUDY OF THE CHARACTERISTICS OF MODERN ENGINE NOISE AND THE RESPONSE CHARACTERISTICS OF STRUCTURES•
AD- 272 210

•AUDIOMETRY
AIRCRAFT NOISE
REPRINT: EXPERIMENTAL INVESTIGATIONS OF DISCOMFORT PRODUCED BY AIRPLANE NOISES.
AD- 689 086

MILITARY MEDICINE
STATUS OF PURE-TONE AUDIOMETRY IN USAF HEARING PROGRAMS.•
AD- 717 846

•AUDITORY PERCEPTION
AIRCRAFT DETECTION
CORRELATION OF ACTUAL AND ANALYTICAL HELICOPTER AURAL DETECTION CRITERIA. VOLUME I.•
AD-B002 067

AIRCRAFT NOISE
COMPARISONS BETWEEN SUBJECTIVE RATINGS OF AIRCRAFT NOISE AND VARIOUS OBJECTIVE MEASURES.•
AD- 673 682

AIRCRAFT NOISE EVALUATION.•
AD- 676 230

ANALYSIS OF OPERATIONAL NOISE MEASUREMENTS IN TERMS OF SELECTED HUMAN RESPONSE NOISE EVALUATION MEASURES.•
AD- 741 149

PREDICTING AURAL DETECTABILITY OF AIRCRAFT IN NOISE BACKGROUNDS.•
AD- 902 828

JET PLANE NOISE
NOISE AND SPEECH LEVELS ASSOCIATED WITH THE F-111A PREP AREA, MCCLELLAN AFB.•
AD- 744 828

NOISE
GROWTH OF NOISINESS FOR TONES AND BANDS OF NOISE AT DIFFERENT FREQUENCIES.•
AD- 663 904

•AVIATION MEDICINE
AIRCRAFT NOISE
BIOACOUSTIC NOISE PROBLEMS DURING OPERATION OF C-7A CARIBOU

AIRCRAFT.•
AD- 738 627

JET PLANE NOISE
NOISE ASSOCIATED WITH OPERATION OF THE C-9A (AEROMEDICAL EVACUATION) AIRCRAFT.•
AD- 715 222
NOISE ASSOCIATED WITH AIRBORNE OPERATION OF C-141A AIRCRAFT.•
AD- 718 097
NOISE LEVELS ON AIRCRAFT-CARRIER FLIGHT DECKS, AND THEIR EFFECTS.•
AD- 729 067

PILOTS
COCKPIT NOISE WITHIN TRAINER AIRCRAFT.•
AD- 717 852

•AVIATION PERSONNEL
AUDIOMETRY
THE RELATIONSHIP OF THE NAVAL AVIATOR'S SPEECH DISCRIMINATION TEST TO THE PURE TONE AUDIOGRAM.•
AD- 671 188

•AXIAL FLOW COMPRESSORS
JET ENGINE NOISE
FAN/COMPRESSOR NOISE RESEARCH. VOLUME I. DETAILED DISCUSSION.•
AD- 740 513
FAN/COMPRESSOR NOISE RESEARCH. VOLUME II. DETAILED DISCUSSION.•
AD- 740 514
FAN/COMPRESSOR NOISE RESEARCH. VOLUME III. COMPILATION OF TEST DATA.•
AD- 740 515
FAN/COMPRESSOR NOISE RESEARCH. VOLUME IV. COMPILATION OF TEST DATA.•
AD- 740 516

•BACKGROUND NOISE
MODEL STUDY OF A PROPOSED ENGINEERING ACOUSTIC RESEARCH FACILITY.
AD-A030 639

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USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 31. B-52H IN-FLIGHT CREW NOISE.•
AD-A029 605
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 32. KC-135A IN-FLIGHT CREW NOISE.•
AD-A029 606
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 33. C-131B IN-FLIGHT CREW NOISE.•
AD-A029 607
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 34. VC-118A IN-FLIGHT CREW/PASSENGER NOISE.•
AD-A029 608
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 35. T-39B IN-FLIGHT CREW/PASSENGER NOISE.•
AD-A029 609
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 37. F-4D IN-FLIGHT CREW NOISE.•
AD-A029 610
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 42. EC-135H IN-FLIGHT CREW NOISE.•
AD-A029 613
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 45. F-111E IN-FLIGHT CREW NOISE.•
AD-A029 614
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 46. O-2A IN-FLIGHT CREW NOISE.•
AD-A029 615
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 47. O-2B IN-FLIGHT CREW NOISE.•
AD-A029 616
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 48. T-33A IN-FLIGHT CREW NOISE.•
AD-A029 617
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 49. T-34A IN-FLIGHT CREW NOISE.•
AD-A029 618
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 50. HH-43B IN-FLIGHT CREW NOISE.•
AD-A029 619
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 51. HH-53C IN-FLIGHT CREW NOISE.•
AD-A029 620
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 52. A-1E IN-FLIGHT CREW NOISE.•
AD-A029 621
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 53. AC-119G IN-FLIGHT CREW NOISE.•
AD-A029 622
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 54. C-123K IN-FLIGHT CREW NOISE.•
AD-A029 623
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 55. AC-130A IN-FLIGHT CREW NOISE.•
AD-A029 624
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 56. HC-130N IN-FLIGHT CREW NOISE.•
AD-A029 625
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 57. T-28D-5 IN-FLIGHT CREW NOISE.•
AD-A029 626
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 60. UH-1N IN-FLIGHT CREW NOISE.•
AD-A029 627
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 61. HH-3E IN-FLIGHT CREW NOISE.•
AD-A029 628
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 62. C-5A IN-FLIGHT CREW/PASSENGER NOISE.•
AD-A029 629

USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME I. ORGANIZATION, CONTENT AND APPLICATION.•
AD-A031 865

USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 65. T-37B AIRCRAFT, NEAR AND FAR-FIELD NOISE.•
AD-A033 531

•BOMBER AIRCRAFT
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 64. B-52G AIRCRAFT, NEAR AND FAR-FIELD NOISE.•
AD-A033 643

•CALIFORNIA
URBAN PLANNING
NOISE FROM AIRCRAFT OPERATIONS AT MIRAMAR NAVAL AIR STATION, CALIFORNIA AND LAND USE INTERPRETATIONS.•
AD- 740 393

•CAPTIVE TESTS
FORCES ON A COANDA SURFACE.•
AD- 775 950

•CATAPULTS
COMMERCIAL PLANES
RESEARCH STUDY OF COST EFFECTIVENESS OF AUXILIARY LAUNCH SYSTEMS APPLICABLE TO COMMERCIAL TRANSPORTS FOR PURPOSES OF NOISE ABATEMENT.•
AD- 732 264

•CIVIL AVIATION
FAA INTEGRATED NOISE MODEL DATA BASE.•
AD-A036 723

AIRCRAFT NOISE
RESULTS OF NOISE SURVEYS OF SEVENTEEN GENERAL AVIATION TYPE AIRCRAFT.•
AD- 759 212

•COANDA EFFECT
FORCES ON A COANDA SURFACE.•
AD- 775 950

•COCKPITS
AIRCRAFT NOISE
COCKPIT NOISE INTENSITY: FIFTEEN SINGLE-ENGINE LIGHT AIRCRAFT.•
AD- 686 673

COCKPIT NOISE INTENSITY: ELEVEN TWIN-ENGINE LIGHT AIRCRAFT.•
AD- 688 111

COCKPIT NOISE WITHIN TRAINER AIRCRAFT.•
AD- 717 852

AIRPLANE ENGINE NOISE
COCKPIT NOISE EXPOSURES ASSOCIATED WITH THE OPERATION OF FIXED-AND ROTARY-WING AIRCRAFT.•
AD- 705 964

AIRPLANE NOISE
NOISE ASSOCIATED WITH T-41A AND T-41C TRAINER AIRCRAFT.•
AD- 731 128

JET PLANE NOISE
NOISE WITHIN THE F-4E DURING GROUND AND AIRBORNE OPERATIONS.•
AD- 731 092

•COMBUSTION
COMBUSTION GENERATED NOISE IN TURBOPROPULSION SYSTEMS.•
AD- 785 485

COMBUSTION NOISE INVESTIGATION.•
AD-A038 154

RESEARCH ON NOISE GENERATED BY DUCTED AIR-FUEL COMBUSTION SYSTEMS.•
AD-A039 957

ACOUSTICS
COMBUSTION GENERATED NOISE IN TURBOPROPULSION SYSTEMS.•
AD- 768 615

•COMBUSTORS
INVESTIGATION OF AIRCRAFT COMBUSTOR NOISE.•
AD-A001 737

RESEARCH ON NOISE GENERATED BY DUCTED AIR-FUEL COMBUSTION SYSTEMS.•
AD-A039 957

•COMMERCIAL AIRCRAFT
COMMERCIAL AIRCRAFT NOISE DEFINITION - L1011 TRISTAR. VOLUME I.•
AD-A012 371

COMMERCIAL AIRCRAFT NOISE DEFINITION - L-1011 TRISTAR. VOLUME II-L-1011-1 DATA.•
AD-A012 372

COMMERCIAL AIRCRAFT NOISE DEFINITION - L-1011 TRISTAR. VOLUME III - PROGRAM USER'S MANUAL.•
AD-A012 373

COMMERCIAL AIRCRAFT NOISE DEFINITION - L-1011 TRISTAR. VOLUME IV-PROGRAM DESIGN SPECIFICATION.•
AD-A012 374

COMMERCIAL AIRCRAFT NOISE DEFINITION - L-1011 TRISTAR. VOLUME V-COMPUTER PROGRAMMER'S MANUAL.•
AD-A012 375

AIRCRAFT NOISE DEFINITION - INDIVIDUAL AIRCRAFT TECHNICAL DATA--MODEL 727.•
AD-A013 177

AIRCRAFT NOISE DEFINITION. INDIVIDUAL AIRCRAFT TECHNICAL DATA MODEL - 737.•
AD-A014 964

AIRCRAFT NOISE DEFINITION. PHASE I. ANALYSIS OF EXISTING DATA FOR THE DC-8, DC-9 AND DC-10 AIRCRAFT.•
AD-A016 278

NOISE CERTIFICATION CRITERIA AND IMPLEMENTATION CONSIDERATIONS FOR V/STOL AIRCRAFT. VOLUME I.•
AD-A018 036

AIRCRAFT NOISE DEFINITION. PHASE II. ANALYSIS OF FLYOVER-NOISE DATA FOR THE DC-8-61 AIRCRAFT.•
AD-A019 759

REVIEW OF STUDIES INVESTIGATING HUMAN RESPONSE TO COMMERCIAL

AIRCRAFT NOISE.•
AD-A022 356

•COMMERCIAL PLANES
STOL NOISE PREDICTION AND ATTENUATION MODELS IN SUPPORT OF REGULATORY EFFORT.•
AD- 777 569

AIRCRAFT NOISE
NOISE CONTOURS FOR SHORT AND MEDIUM RANGE TRANSPORT AIRCRAFT AND BUSINESS AIRCRAFT.
AD- 617 763

AIRPLANE NOISE
RESEARCH STUDY OF COST EFFECTIVENESS OF AUXILIARY LAUNCH SYSTEMS APPLICABLE TO COMMERCIAL TRANSPORTS FOR PURPOSES OF NOISE ABATEMENT.•
AD- 732 264

JET TRANSPORT PLANES
REPRINT: THE ROAR, THE WHINE, THE BOOM AND THE LAW: SOME LEGAL CONCERNS ABOUT THE SST.
AD- 698 398
NOISE PRIMER FOR THE SUPERSONIC TRANSPORT.•
AD- 721 010

•COMMUNITY RELATIONS
SENSITIVITY STUDIES OF COMMUNITY-AIRCRAFT NOISE EXPOSURE (NOISEMAP) PREDICTION PROCEDURE,•
AD-A026 535

•COMPRESSOR NOISE
EFFECTS OF FINITE DUCT LENGTH AND BLADE CHORD ON NOISE GENERATION BY A ROTATING BLADE ROW,•
AD- 782 165

TURBOFAN ENGINES
FAN-COMPRESSOR NOISE; PREDICTION, RESEARCH, AND REDUCTION STUDIES.•
AD- 733 590

•COMPUTER PROGRAMMING
BOEING AIRPLANE/NOISE PERFORMANCE COMPUTER PROGRAM. USER'S MANUAL.•
AD-A012 385
BOEING AIRPLANE/NOISE PERFORMANCE COMPUTER PROGRAM. PROGRAMMER'S MANUAL.•
AD-A013 768
COMMUNITY NOISE EXPOSURE RESULTING FROM AIRCRAFT OPERATIONS. APPENDIX: NOISEMAP PROGRAM OPERATOR'S MANUAL.•
AD-A022 911

AIRCRAFT NOISE
ANALYSIS OF COMMUNITY AND AIRPORT RELATIONSHIPS/NOISE ABATEMENT. VOLUME I. AN APPROACH TO ANALYSIS OF AIRCRAFT NOISE PROBLEMS USING COMPUTER-AIDED TECHNIQUES.
AD- 618 190

•COMPUTER PROGRAMS
V/STOL ROTARY PROPULSION SYSTEMS - NOISE PREDICTION AND REDUCTION. VOLUME III. COMPUTER PROGRAM USER'S MANUAL.•
AD-A027 363
AIRCRAFT CONFIGURATION NOISE REDUCTION. VOLUME II. COMPUTER PROGRAM USER'S GUIDE AND OTHER APPENDICES.•
AD-A030 656
AIRCRAFT CONFIGURATION NOISE REDUCTION. VOLUME III. COMPUTER PROGRAM SOURCE LISTING.•
AD-A030 657
FAA INTEGRATED NOISE MODEL USER'S GUIDE,•
AD-A035 062
SUPERSONIC JET EXHAUST NOISE INVESTIGATION. VOLUME III. COMPUTER USER'S MANUAL FOR AERO-ACOUSTIC PREDICTIONS.•
AD-A038 614

UNDERWATER SOUND
COMPUTER PROGRAMS FOR UNDERWATER SOUND FIELDS DUE TO AIRBORNE SOURCES.•

COM-ELE
AD- 891 216

•CONTROL SYSTEMS
DC-9 NOISE RETROFIT FEASIBILITY. VOLUME I. LOWER GOAL NOISE, PERFORMANCE AND COST EVALUATION.•
AD- 776 127

•COST EFFECTIVENESS
LAUNCHING
RESEARCH STUDY OF COST EFFECTIVENESS OF AUXILIARY LAUNCH SYSTEMS APPLICABLE TO COMMERCIAL TRANSPORTS FOR PURPOSES OF NOISE ABATEMENT.•
AD- 732 264

•COSTS
NOISE
ALLOCATING THE COSTS OF ALLEVIATING SUBSONIC JET AIRCRAFT NOISE.•
AD- 648 748

•DOGS
EAR PROTECTORS
EVALUATION OF CANINE EAR DEFENDERS.•
AD- 697 377

•DUCTS
RESEARCH ON NOISE GENERATED BY DUCTED AIR-FUEL COMBUSTION SYSTEMS.•
AD-A039 957

•EAR PROTECTORS
EFFECTIVENESS
EVALUATION OF CANINE EAR DEFENDERS.•
AD- 697 377

•EARPHONES
ACOUSTIC NOISE SUPPRESSION IN AIRBORNE COMMUNICATIONS.•
AD-A013 365

•ELECTRIC FILTERS
DESIGN
ACTIVE FILTERS APPLIED TO HELICOPTER NOISE REDUCTION.•

*ENGINE NOISE
HELICOPTERS
HELICOPTER NOISE CHARACTERISTICS FOR HELIPORT PLANNING.
AD= 617 769

JET FIGHTERS
ACOUSTIC ENVIRONMENTS OF THE F-111A AIRCRAFT DURING GROUND RUNUP.*
AD= 673 346

*EXHAUST GASES
THE GENERATION AND RADIATION OF SUPERSONIC JET EXHAUST NOISE: A PROGRESS REPORT ON STUDIES OF JET NOISE GENERATION AND RADIATION, TURBULENCE STRUCTURE AND LASER VELOCIMETRY.*
AD= 787 192

JET ENGINE NOISE
FAR FIELD NOISE GENERATION BY COAXIAL FLOW JET EXHAUSTS. VOLUME II. COMPILATION OF TEST RESULTS.*
AD= 749 039

*EXHAUST SYSTEMS
DC-9 NOISE RETROFIT FEASIBILITY. VOLUME I. LOWER GOAL NOISE, PERFORMANCE AND COST EVALUATION.*
AD= 776 127

*EXPOSURE(PHYSIOLOGY)
AIRCRAFT NOISE
COCKPIT NOISE EXPOSURES ASSOCIATED WITH THE OPERATION OF FIXED-AND ROTARY-WING AIRCRAFT.*
AD= 705 984

*FANS
JET ENGINE NOISE
FAN-COMPRESSOR NOISE: PREDICTION, RESEARCH, AND REDUCTION STUDIES.*
AD= 733 590

*FLIGHT CREWS
PROTECTIVE CLOTHING
USER EVALUATIONS OF TWO AIRCREW PROTECTIVE HELMETS.*
AD= 674 184

*FLIGHT DECKS
AIRPLANE NOISE
NOISE LEVELS ON AIRCRAFT-CARRIER FLIGHT DECKS, AND THEIR EFFECTS.*
AD= 729 067

*FLIGHT PATHS
TECHNICAL BACKGROUND: INTERIM CRITERIA FOR PLANNING ROTARY-WING AIRCRAFT TRAFFIC PATTERNS, AND SITING NOISE-SENSITIVE LAND USES.*
AD-A031 449
USER MANUAL: INTERIM PROCEDURE FOR PLANNING ROTARY-WING AIRCRAFT TRAFFIC PATTERNS AND SITING NOISE-SENSITIVE LAND USES.*
AD-A031 450

JET ENGINE NOISE
FACTORS INFLUENCING THE NOISE EXPOSURE UNDER THE LANDING PATH FOR JET TRANSPORT AIRCRAFT.*
AD= 617 765

*GAS TURBINES
RESEARCH ON NOISE GENERATED BY DUCTED AIR-FUEL COMBUSTION SYSTEMS.*
AD= 785 028
RESEARCH ON NOISE GENERATED BY DUCTED AIR-FUEL COMBUSTION SYSTEMS.*
AD-A015 688

*HEARING
AIR FORCE PERSONNEL
EVALUATION OF PATIENTS SUSPECTED OF HAVING NOISE-INDUCED HEARING LOSS.*
AD= 619 409

AIRCRAFT NOISE
CONVENTIONAL AND HIGH FREQUENCY HEARING OF NAVAL AIRCREWMEN AS A FUNCTION OF NOISE EXPOSURE.*
AD= 739 368
EVALUATION OF HEARING LEVELS OF RESIDENTS LIVING NEAR A MAJOR AIRPORT.*
AD= 747 129
THE EFFECT OF NOISE EXPOSURE DURING PRIMARY FLIGHT TRAINING ON THE CONVENTIONAL AND HIGH FREQUENCY HEARING OF NAVAL AVIATION OFFICER CANDIDATES.*
AD= 766 498

JET PLANE NOISE
NOISE LEVELS ON AIRCRAFT-CARRIER FLIGHT DECKS, AND THEIR EFFECTS.*
AD= 729 067

NOISE
THE RELATIONS OF HEARING LOSS TO NOISE EXPOSURE.*
AD= 646 775

PROTECTION
MEASUREMENT AND ANALYSIS OF BIOACOUSTIC ENVIRONMENTS ABOARD AC-119G AND AC-130A GUNSHIPS.*
AD= 699 593
NOISE ENVIRONMENTS WITHIN MULTIPLACE FIXED-WING AIRCRAFT.*
AD= 708 430

SIGNAL-TO-NOISE RATIO
AUDITORY PROCESSING FOR SPEECH INTELLIGIBILITY IMPROVEMENT.*
AD= 717 394

*HELICOPTER ROTORS
A NEW CAPABILITY FOR PREDICTING HELICOPTER ROTOR NOISE IN HOVER AND IN FLIGHT.*
AD-A025 982

PROPELLER NOISE
AN INVESTIGATION OF NOISE GENERATION ON A HOVERING ROTOR.*
AD= 721 312
AN INVESTIGATION OF NOISE GENERATION ON A HOVERING ROTOR, PART II.*
AD= 753 397

*HELICOPTERS
A TECHNIQUE FOR MEASURING THE EXTERNAL NOISE OF A MOVING

HELICOPTER.•
AD- 773 687
CONSTRAINED LAYER TREATMENTS FOR NOISE CONTROL IN A HELICOPTER.•
AD- 783 234
A COMPREHENSIVE REVIEW OF HELICOPTER NOISE LITERATURE.•
AD-A014 690
TECHNICAL BACKGROUND: INTERIM CRITERIA FOR PLANNING ROTARY-WING AIRCRAFT TRAFFIC PATTERNS, AND SITING NOISE-SENSITIVE LAND USES.•
AD-A031 999
USER MANUAL: INTERIM PROCEDURE FOR PLANNING ROTARY-WING AIRCRAFT TRAFFIC PATTERNS AND SITING NOISE-SENSITIVE LAND USES.•
AD-A031 950
NOISE CERTIFICATION CONSIDERATIONS FOR HELICOPTERS BASED ON LABORATORY INVESTIGATIONS.•
AD-A032 028
HELICOPTER NOISE REDUCTION DESIGN TRADE-OFF STUDY.•
AD-A038 192
PHYSICAL ANALYSIS OF THE IMPULSIVE ASPECTS OF HELICOPTER NOISE.•
AD-A039 715
HELICOPTER NOISE MEASUREMENTS DATA REPORT. VOLUME I. HELICOPTER MODELS: HUGHES 300-C. HUGHES 500-C, BELL 47-G. BELL 206L,•
AD-A040 561
HELICOPTER NOISE MEASUREMENTS DATA REPORT. VOLUME II. HELICOPTER MODELS: BELL 212 (UH-1N), SIKORSKY S-61 (SH-3A), SIKORSKY S-64 'SKYCRANE' (CH-54B), BOEING VERTOL 'CHINOOK' (CH-47C),•
AD-A040 562

ACOUSTIC DETECTION
AN EXPERIMENT IN AURAL DETECTION OF HELICOPTERS.•
AD- 917 355

AERODYNAMIC CONFIGURATIONS
TEST AND EVALUATION OF A QUIET HELICOPTER CONFIGURATION HH-43B.•
AD- 901 273

AIRCRAFT NOISE
NOISE ENCOUNTERED IN ROTARY-WING AIRCRAFT.•
AD- 702 422

NOISE
BASELINE NOISE MEASUREMENTS OF THE OH-58A HELICOPTER.•
AD- 731 467
HELICOPTER NOISE SYMPOSIUM, HELD AT DURHAM'S HOTEL AND MOTEL, DURHAM, NORTH CAROLINA, ON SEPTEMBER 28-30 1971.•
AD- 748 876

RADIO COMMUNICATION SYSTEMS
ACTIVE FILTERS APPLIED TO HELICOPTER NOISE REDUCTION.•
AD- 739 812

SONAR PERSONNEL
SONAR DETECTION OF SUBMARINES BY HELICOPTER.•
AD- 711 910

•HELICOPTORS
ENGINE NOISE
HELICOPTER NOISE CHARACTERISTICS FOR HELIPORT PLANNING.
AD- 617 764

•HELMETS
ACOUSTIC INSULATION
NOISE ENVIRONS AND HELMET PERFORMANCE FOR THE P-1127 V/STOL AIRCRAFT.•
AD- 686 736

PERFORMANCE(ENGINEERING)
USER EVALUATIONS OF TWO AIRCREW PROTECTIVE HELMETS.•
AD- 674 184

•HOUSING(DWELLINGS)
ACOUSTIC INSULATION
A STUDY--INSULATING HOUSES FROM AIRCRAFT NOISE.•
AD- 666 376

•IMPULSE NOISE
IN-FLIGHT FAR-FIELD MEASUREMENT OF HELICOPTER IMPULSIVE NOISE,•
AD-A025 979
PHYSICAL ANALYSIS OF THE IMPULSIVE ASPECTS OF HELICOPTER NOISE.•
AD-A039 715

•INDUSTRIAL MEDICINE
NOISE
THE RELATIONS OF HEARING LOSS TO NOISE EXPOSURE.•
AD- 646 775

•INSTRUMENT LANDINGS
AIRCRAFT NOISE
AN OPERATIONAL EVALUATION OF THE TWO-SEGMENT APPROACH FOR NOISE ABATEMENT.•
AD- 724 586

•INTELLIGIBILITY
SPEECH
THE SPEECH INTERFERENCE EFFECTS OF AIRCRAFT NOISE.•
AD- 660 712
AUDITORY PROCESSING FOR SPEECH INTELLIGIBILITY IMPROVEMENT,•
AD- 717 394
SPEECH INTELLIGIBILITY TESTING WITH THE MODIFIED RHYME TEST IN AVIATION TYPE NOISE.•
AD- 765 470

•INTERCOMMUNICATION SYSTEMS
ACOUSTIC NOISE SUPPRESSION IN AIRBORNE COMMUNICATIONS.•
AD-A013 365

•JET AIRCRAFT
AIRCRAFT NOISE GENERATION, EMISSION AND REDUCTION.•
AD-A012 090
AIRCRAFT NOISE DEFINITION. PHASE I. ANALYSIS OF EXISTING DATA FOR THE DC-8, DC-9 AND DC-10 AIRCRAFT.•
AD-A016 278
AIRCRAFT NOISE DEFINITION. PHASE II. ANALYSIS OF FLYOVER-NOISE DATA FOR THE DC-8-61 AIRCRAFT.•

AD-A019 759

NOISE
ALLOCATING THE COSTS OF ALLEVIATING SUBSONIC JET AIRCRAFT NOISE.•
AD- 648 748

•JET AIRCRAFT NOISE
NAVAL AIR STATIONS
NOISE FROM AIRCRAFT OPERATIONS, U. S. NAVAL AIR STATION, LEMOORE, CALIFORNIA.•
AD- 754 111

•JET BOMBERS
B-58 FLIGHT LINE AND MAINTENANCE HANGAR NOISE SURVEY (CARSWELL AFB, TEXAS)•
AD- 261 500

•JET ENGINE EXHAUST
THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME II. STUDIES OF JET NOISE, TURBULENCE STRUCTURE AND LASER VELOCIMETRY.•
AD-A032 881
THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME III. TURBULENT MIXING NOISE DATA.•
AD-A032 882
THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME IV. SHOCK-ASSOCIATED NOISE DATA.•
AD-A032 883
SUPERSONIC JET EXHAUST NOISE INVESTIGATION. VOLUME I. SUMMARY REPORT.•
AD-A038 682

•JET ENGINE NACELLES
FAA JT3D QUIET NACELLE RETROFIT FEASIBILITY PROGRAM. VOLUME II. UPPER GOAL GROUND TESTING.•
AD-A012 969
FAA JT3D QUIET NACELLE RETROFIT FEASIBILITY PROGRAM. VOLUME II. ADDENDUM A. MODEL AND FULL SCALE PLUG NOZZLE TESTS.•
AD-A023 037

•JET ENGINE NOISE
B-58 FLIGHT LINE AND MAINTENANCE HANGAR NOISE SURVEY (CARSWELL AFB, TEXAS)•
AD- 261 500
COMMUNITY REACTIONS TO AIR FORCE NOISE. PART I. BASIC CONCEPTS AND PRELIMINARY METHODOLOGY•
AD- 267 052
COMMUNITY REACTIONS TO AIR FORCE NOISE. PART II. DATA ON COMMUNITY STUDIES AND THEIR INTERPRETATION•
AD- 267 057
A STUDY OF THE CHARACTERISTICS OF MODERN ENGINE NOISE AND THE RESPONSE CHARACTERISTICS OF STRUCTURES•
AD- 272 210
ACOUSTICAL EVALUATION OF TYPE II AIRCRAFT GROUND RUNUP NOISE SUPPRESSOR AT TRUAX AIR FORCE BASE, WISCONSIN•
AD- 294 189
A TECHNIQUE FOR MEASURING THE EXTERNAL NOISE OF A MOVING HELICOPTER.•
AD- 773 687
JET NOISE REDUCTION TECHNIQUE FOR MILITARY RECONNAISSANCE/SURVEILLANCE AIRCRAFT. PHASE I. BENCH/WIND TUNNEL TESTS.•
AD- 774 748
FORCES ON A COANDA SURFACE.•
AD- 775 950
DC-9 NOISE RETROFIT FEASIBILITY. VOLUME II. UPPER GOAL NOISE, PERFORMANCE AND COST EVALUATION.•
AD- 777 895
EFFECTS OF FINITE DUCT LENGTH AND BLADE CHORD ON NOISE GENERATION BY A ROTATING BLADE ROW.•
AD- 782 165
RESEARCH ON NOISE GENERATED BY DUCTED AIR-FUEL COMBUSTION SYSTEMS.•
AD- 785 028
COMBUSTION GENERATED NOISE IN TURBOPROPULSION SYSTEMS.•
AD- 785 985
SUPERSONIC JET EXHAUST NOISE INVESTIGATION.•
AD- 786 467
NEAR FIELD NOISE PREDICTION FOR A LINEAR ARRAY OF TURBOJET ENGINES.•
AD-A001 329
BYPASS TURBOJET ENGINE NOISE CHARACTERISTICS ON THE TEST STAND-- TRANSLATION•
AD-A003 086
ACOUSTIC ATTENUATION BY VAPORIZATION OF LIQUID DROPLETS -- APPLICATION TO NOISE REDUCTION IN AIRCRAFT POWERPLANTS.•
AD-A009 644
NOISE SURVEY FOR ADDITION OF T-37 AIRCRAFT AT MATHER AFB, CALIFORNIA.•
AD-A010 037
FAA JT3D QUIET NACELLE RETROFIT FEASIBILITY PROGRAM. VOLUME II. UPPER GOAL GROUND TESTING.•
AD-A012 969
CORE ENGINE NOISE CONTROL PROGRAM. VOLUME I. IDENTIFICATION OF COMPONENT NOISE SOURCES.•
AD-A013 128
CORE ENGINE NOISE CONTROL PROGRAM. VOLUME II. IDENTIFICATION OF NOISE GENERATION AND SUPPRESSION MECHANISMS.•
AD-A013 129
CORE ENGINE NOISE CONTROL PROGRAM. VOLUME III. PREDICTION METHODS.•
AD-A013 131
JET NOISE: A SURVEY AND A PREDICTION FOR SUBSONIC FLOWS.•
AD-A013 794
RESEARCH ON NOISE GENERATED BY DUCTED AIR-FUEL COMBUSTION SYSTEMS.•
AD-A015 688
FAA JT3D QUIET NACELLE RETROFIT FEASIBILITY PROGRAM. VOLUME II. ADDENDUM A. MODEL AND FULL SCALE PLUG NOZZLE TESTS.•
AD-A023 037
INVESTIGATION OF FEASIBLE NOZZLE CONFIGURATIONS FOR NOISE REDUCTION IN TURBOFAN AND TURBOJET AIRCRAFT.

VOLUME I. SUMMARY AND MULTINOZZLE CONFIGURATIONS.•
AD-A024 958
INVESTIGATION OF FEASIBLE NOZZLE CONFIGURATIONS FOR NOISE REDUCTION IN TURBOFAN AND TURBOJET AIRCRAFT. VOLUME II. SLOT NOZZLE CONFIGURATION.•
AD-A024 959
NONLINEAR PROPAGATION DISTORTION OF JET NOISE.•
AD-A029 575
CORE ENGINE NOISE PROGRAM. VOLUME III. PREDICTION METHODS -- SUPPLEMENT I. - EXTENSION OF PREDICTION METHODS.•
AD-A030 376
MODEL STUDY OF A PROPOSED ENGINEERING ACOUSTIC RESEARCH FACILITY.
AD-A030 639
AIRCRAFT CONFIGURATION NOISE REDUCTION. VOLUME I. ENGINEERING ANALYSIS.•
AD-A030 655
AIRCRAFT CONFIGURATION NOISE REDUCTION. VOLUME II. COMPUTER PROGRAM USER'S GUIDE AND OTHER APPENDICES.•
AD-A030 656
AIRCRAFT CONFIGURATION NOISE REDUCTION. VOLUME III. COMPUTER PROGRAM SOURCE LISTING.•
AD-A030 657
727/JT8D JET AND FAN NOISE FLIGHT EFFECTS STUDY.•
AD-A031 877
THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME II. STUDIES OF JET NOISE, TURBULENCE STRUCTURE AND LASER VELOCIMETRY.•
AD-A032 881
THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME III. TURBULENT MIXING NOISE DATA.•
AD-A032 882
THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME IV. SHOCK-ASSOCIATED NOISE DATA.•
AD-A032 883
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 65. T-37B AIRCRAFT, NEAR AND FAR-FIELD NOISE.•
AD-A033 531
SUPERSONIC JET EXHAUST NOISE INVESTIGATION. VOLUME II. TECHNICAL REPORT.•
AD-A038 613
SUPERSONIC JET EXHAUST NOISE INVESTIGATION. VOLUME III. COMPUTER USER'S MANUAL FOR AERO-ACOUSTIC PREDICTIONS.•
AD-A038 614
SUPERSONIC JET EXHAUST NOISE INVESTIGATION. VOLUME I. SUMMARY REPORT.•
AD-A038 682
RESEARCH ON NOISE GENERATED BY DUCTED AIR-FUEL COMBUSTION SYSTEMS.•
AD-A039 957
INVESTIGATION OF FEASIBLE NOZZLE CONFIGURATIONS FOR NOISE REDUCTION IN TURBOFAN AND TURBOJET AIRCRAFT. VOLUME III. SHROUDED SLOT NOZZLE CONFIGURATIONS.•
AD-A041 782

ACOUSTIC IMPEDANCE
727NOISE RETROFIT FEASIBILITY. VOLUME I. LOWER GOAL DESIGN, FABRICATION, GROUND AND FLIGHT TESTING.•
AD- 756 040
727 NOISE RETROFIT FEASIBILITY. VOLUME II. UPPER GOAL DESIGN, FABRICATION, AND GROUND TESTING.•
AD- 763 596
727 NOISE RETROFIT FEASIBILITY. VOLUME III. UPPER GOAL FLIGHT TESTING AND PROGRAM SUMMARY.•
AD- 768 850

ACOUSTIC PROPERTIES
NEARFIELD INFRASONIC NOISE GENERATED BY THREE TURBOJET AIRCRAFT DURING GROUND RUNUP OPERATIONS.
AD- 623 086
THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME II. FUTURE STUDIES FOR DEFINITION OF SUPERSONIC JET NOISE GENERATION AND REDUCTION MECHANISMS.•
AD- 749 137
THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME III. PROGRESS TOWARD A UNIFIED THEORY OF JET ENGINE NOISE.•
AD- 749 138
THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME IV. THEORY OF TURBULENCE GENERATED JET NOISE, NOISE RADIATION FROM UPSTREAM SOURCES, AND COMBUSTION NOISE.•
AD- 749 139
THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME V. AN EXPERIMENTAL INVESTIGATION OF JET NOISE VARIATION WITH VELOCITY AND TEMPERATURE.•
AD- 749 140
THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME V - APPENDIX I. TURBULENCE MIXING REGION NOISE DATA.•
AD- 749 141
THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME V - APPENDIX II. SHOCK ASSOCIATED NOISE DATA.•
AD- 749 142
THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME VI. JET FLOW MEASUREMENT AND ANALYSIS WITH SPECIAL EMPHASIS ON REMOTE SENSING DEVICES. CROSSED BEAM SCHLIEREN, LASER DOPPLER VELOCIMETER, PULSED LASER INTERFEROMETER.•
AD- 749 143
THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME I. SUMMARY OF SUPERSONIC JET NOISE STUDIES.•
AD- 749 428

AIRFRAMES
EFFECTIVE SOURCE DISTRIBUTION IN A CHOKED SCREECH JET.•
AD- 727 345

AIRPORTS
NOISE EXPOSURE FORECASTS FOR LOS ANGELES INTERNATIONAL AIRPORT.•
AD- 660 702
NOISE EXPOSURE FORECASTS FOR J. F. KENNEDY INTERNATIONAL AIRPORT.•
AD- 660 703
NOISE EXPOSURE FORECASTS FOR O'HARE INTERNATIONAL AIRPORT.•
AD- 660 704
TECHNIQUE FOR DEVELOPING NOISE EXPOSURE FORECASTS.•
AD- 660 705

ATTENUATION
EXPLORATORY INVESTIGATION OF JET ENGINE SILENCING WITH PLUG NOZZLE CONFIGURATIONS.•
AD- 722 851

AXIAL FLOW COMPRESSORS
FAN/COMPRESSOR NOISE RESEARCH. VOLUME I. DETAILED DISCUSSION.•
AD- 740 513
FAN/COMPRESSOR NOISE RESEARCH. VOLUME II. DETAILED DISCUSSION.•
AD- 740 514
FAN/COMPRESSOR NOISE RESEARCH. VOLUME III. COMPILATION OF TEST DATA.•
AD- 740 515
FAN/COMPRESSOR NOISE RESEARCH. VOLUME IV. COMPILATION OF TEST DATA.•
AD- 740 516

COMBUSTION
COMBUSTION GENERATED NOISE IN TURBOPROPULSION SYSTEMS.•
AD- 768 615

EXHAUST GASES
FAR FIELD NOISE GENERATION BY COAXIAL FLOW JET EXHAUSTS. VOLUME II. COMPILATION OF TEST RESULTS.•
AD- 748 039

FANS
FAN-COMPRESSOR NOISE; PREDICTION, RESEARCH, AND REDUCTION STUDIES.•
AD- 733 590

FLIGHT PATHS
FACTORS INFLUENCING THE NOISE EXPOSURE UNDER THE LANDING PATH FOR JET TRANSPORT AIRCRAFT.
AD- 617 765

JET MIXING FLOW
REPRINT: NEW ASPECTS OF SOUND GENERATION BY CIRCULAR JETS.
AD- 752 279

NAVAL AIRCRAFT
INVESTIGATION OF THE NOISE ASPECTS OF CARRIER DECK JET ENGINE OPERATION, AND EFFECTS OF NOISE SUPPRESSION ON AIRCRAFT MISSION PERFORMANCE. VOLUME I. EFFECTS OF NOISE FROM CARRIER DECK JET ENGINE OPERATION ON HEARING, SPEECH INTERFERENCE, AND SONIC FATIGUE. •
AD- 432 086

REDUCTION
NOISE AND ITS EFFECT ON AIRCRAFT OPERATION.
AD- 427 666
REPRINT: ON THE TRANSMISSION OF SOUND WAVES THROUGH A BLADE ROW.
AD- 738 511

SOURCES
RESEARCH ON NOISE GENERATED BY DUCTED AIR-FUEL COMBUSTION SYSTEMS.•
AD- 767 337

STRESS(PHYSIOLOGY)
STANDARDIZATION OF AVIATION NOISE STRESS--TRANSLATION.
AD- 691 053

SUPPRESSORS
SUPERSONIC TRANSPORT NOISE REDUCTION TECHNOLOGY SUMMARY. PHASE I.•
AD- 907 108
SUPERSONIC TRANSPORT NOISE REDUCTION TECHNOLOGY SUMMARY. PHASE I, SUMMARY OF GE4/SST ACOUSTIC SUPPRESSION RESEARCH. VOLUME 1.•
AD- 907 109
SUPERSONIC TRANSPORT NOISE REDUCTION TECHNOLOGY SUMMARY. PHASE I. SUMMARY OF GE4/SST ACOUSTIC SUPPRESSION RESEARCH. VOLUME 2.•
AD- 907 110

TAKEOFF
STUDY OF THE EFFECT OF DEPARTURE PROCEDURES ON THE NOISE PRODUCED BY JET TRANSPORT AIRCRAFT.
AD- 617 766

TEST FACILITIES
RESEARCH ON NOISE GENERATED BY DUCTED AIR-FUEL COMBUSTION SYSTEMS.•
AD- 754 094
GRUMMAN JET NOISE FACILITY.•
AD- 759 862

TURBOJET ENGINES
NOISE AND AIR POLLUTION EMISSIONS FROM NOISE SUPPRESORS FOR ENGINE TEST STANDS AND AIRCRAFT POWER CHECK PADS.•
AD- 757 862

TURBOJET EXHAUST NOZZLES
NOISE GENERATION BY CYLINDRICAL SPOILERS IMMERSED IN AN AIR DUCT.•
AD- 767 336

TURBOJET INLETS
STATE-OF-THE-ART REVIEW OF TURBINE ENGINE INLET NOISE.•
AD- 753 000

URBAN PLANNING
PROCEDURES FOR DEVELOPING NOISE EXPOSURE FORECAST AREAS FOR AIRCRAFT FLIGHT OPERATIONS.•
AD- 660 706
1965, 1970 AND 1975 NOISE EXPOSURE FORECAST AREAS FOR CHICAGO O'HARE INTERNATIONAL AIRPORT.•
AD- 660 708
1965, 1970 AND 1975 NOISE

EXPOSURE FORECAST AREAS FOR LOS ANGELES INTERNATIONAL AIRPORT.•
AD- 660 709
1965, 1970 AND 1975 NOISE EXPOSURE FORECAST AREAS FOR JOHN F. KENNEDY AIRPORT, NEW YORK.•
AD- 660 710

•JET ENGINES
FORCES ON A COANDA SURFACE.•
AD- 775 950

•JET FIGHTERS
AIRCRAFT NOISE
NOISE ENVIRONMENTS OF CONTROL TOWERS.•
AD- 752 535

ENGINE NOISE
ACOUSTIC ENVIRONMENTS OF THE F-111A AIRCRAFT DURING GROUND RUNUP.•
AD- 673 346

JET PLANE NOISE
NOISE WITHIN THE F-4E DURING GROUND AND AIRBORNE OPERATIONS.•
AD- 731 092

•JET FLAMES
COMBUSTION GENERATED NOISE IN TURBOPROPULSION SYSTEMS.•
AD- 785 485

•JET PLANE NOISE
EVALUATION OF AIRPORT NOISE AND COMMUNITY REACTION•
AD- 263 053
A STUDY OF THE CHARACTERISTICS OF MODERN ENGINE NOISE AND THE RESPONSE CHARACTERISTICS OF STRUCTURES•
AD- 272 210
THE GENERATION AND RADIATION OF SUPERSONIC JET EXHAUST NOISE: A PROGRESS REPORT ON STUDIES OF JET NOISE GENERATION AND RADIATION, TURBULENCE STRUCTURE AND LASER VELOCIMETRY.•
AD- 787 192
COMMERCIAL AIRCRAFT NOISE DEFINITION - L1011 TRISTAR. VOLUME I.•
AD-A012 371
COMMERCIAL AIRCRAFT NOISE DEFINITION - L-1011 TRISTAR. VOLUME II-L-1011-1 DATA.•
AD-A012 372
COMMERCIAL AIRCRAFT NOISE DEFINITION - L-1011 TRISTAR. VOLUME III - PROGRAM USER'S MANUAL.•
AD-A012 373
COMMERCIAL AIRCRAFT NOISE DEFINITION - L-1011 TRISTAR. VOLUME IV-PROGRAM DESIGN SPECIFICATION.•
AD-A012 374
COMMERCIAL AIRCRAFT NOISE DEFINITION - L-1011 TRISTAR. VOLUME V-COMPUTER PROGRAMMER'S MANUAL.•
AD-A012 375
AIRCRAFT NOISE DEFINITION. INDIVIDUAL AIRCRAFT TECHNICAL DATA-MODEL 707.•
AD-A014 642
V/STOL AIRCRAFT NOISE PREDICTION (JET PROPULSORS).•
AD-A028 765
THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME I. SUMMARY.•
AD-A032 478
ENVIRONMENTAL POLLUTION: NOISE POLLUTION - SONIC BOOM.•
AD-A041 900
HIGH VELOCITY JET NOISE SOURCE LOCATION AND REDUCTION. TASK 1. ACTIVATION OF FACILITIES AND VALIDATION OF SOURCE LOCATION TECHNIQUES.•
AD-A041 848
HIGH VELOCITY JET NOISE SOURCE LOCATION AND REDUCTION. TASK 4. DEVELOPMENT/EVALUATION OF TECHNIQUES FOR 'INFLIGHT' INVESTIGATION.•
AD-A041 849

ACOUSTIC PROPERTIES
FREQUENCY SPECTRUM AND TIME DURATION DESCRIPTIONS OF AIRCRAFT FLYOVER NOISE SIGNALS.•
AD- 654 927

ACOUSTIC SIGNALS
DESCRIPTIONS OF FLYOVER NOISE SIGNALS PRODUCED BY VARIOUS JET TRANSPORT AIRCRAFT.•
AD- 657 633

AIRPORTS
AIR TRANSPORTATION ECONOMICS.
AD- 647 393
NOISE MEASUREMENTS DURING APPROACH OPERATIONS ON RUNWAY 21R AT DETROIT METROPOLITAN AIRPORT.•
AD- 740 642

APPROACH
MEASUREMENT AND ANALYSIS OF NOISE FROM FOUR AIRCRAFT DURING APPROACH AND DEPARTURE OPERATIONS (727, KC-135, 707-320B, AND DC-9).•
AD- 740 563

ATTENUATION
EXPERIMENTAL ATMOSPHERIC ABSORPTION COEFFICIENTS.•
AD- 739 987

AUDITORY PERCEPTION
SUBJECTIVE EVALUATION OF GENERAL AVIATION AIRCRAFT NOISE.•
AD- 673 987
NOISE AND SPEECH LEVELS ASSOCIATED WITH THE F-111A PREP AREA, MCCLELLAN AFB.•
AD- 744 828

AVIATION MEDICINE
NOISE ASSOCIATED WITH OPERATION OF THE C-9A (AEROMEDICAL EVACUATION) AIRCRAFT.•
AD- 715 222
NOISE ASSOCIATED WITH AIRBORNE OPERATION OF C-141A AIRCRAFT.•
AD- 718 097
NOISE LEVELS ON AIRCRAFT-CARRIER FLIGHT DECKS, AND THEIR EFFECTS.•
AD- 729 067

COCKPITS

NOISE WITHIN THE F-4E DURING GROUND AND AIRBORNE OPERATIONS.•
AD- 731 092

CONTROL
NOISE EXPOSURE FORECAST CONTOURS FOR AIRCRAFT NOISE TRADEOFF STUDIES AT THREE MAJOR AIRPORTS.•
AD- 710 525

ECOLOGY
NOISE SURVEY, F-105 OVERFLIGHTS, WICHITA MOUNTAINS WILDLIFE REFUGE AND VICINITY, FORT SILL, OKLAHOMA.•
AD- 753 113

HAZARDS
STATUS OF PURE-TONE AUDIOMETRY IN USAF HEARING PROGRAMS.•
AD- 717 896

LAW
AIRCRAFT TRESPASS AND NUISANCE CASES SINCE 1958 BECAUSE OF JET NOISE: ANALYSIS OF LIABILITY.
AD- 620 347

MEASUREMENT
MEASUREMENT AND ANALYSIS OF NOISE FROM FOUR AIRCRAFT IN LEVEL FLIGHT (727, KC-135, 707-320B AND DC-9).•
AD- 739 870
THE EFFECTS OF LOCAL METEOROLOGICAL FACTORS UPON AIRCRAFT NOISE MEASUREMENTS.•
AD- 754 270
SUPERSONIC JET NOISE INVESTIGATION USING JET FLUCTUATING PRESSURE PROBES.•
AD- 762 296

NAVAL AIR STATIONS
NOISE FROM AIRCRAFT OPERATIONS AT MIRAMAR NAVAL AIR STATION, CALIFORNIA AND LAND USE INTERPRETATIONS.•
AD- 740 393

PREDICTIONS
NOISE EXPOSURE FORECAST CONTOURS FOR EXPECTED 1985 AND 1990 OPERATIONS AT SEVEN U. S. AIRPORTS.•
AD- 722 365

REDUCTION
NOISE EXPOSURE FORECAST CONTOUR INTERPRETATIONS OF AIRCRAFT NOISE TRADEOFF STUDIES.•
AD- 695 507

SOCIOMETRICS
INDICATORS OF THE EFFECT OF JET NOISE ON THE VALUE OF REAL ESTATE.•
AD- 690 827

STANDARDS
AIRCRAFT NOISE STANDARDS AND REGULATIONS.•
AD- 723 579

SUPERSONIC AIRCRAFT
NOISE PRIMER FOR THE SUPERSONIC TRANSPORT.•
AD- 721 010
SUPERSONIC JET EXHAUST NOISE.•
AD- 747 774
THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME II. FUTURE STUDIES FOR DEFINITION OF SUPERSONIC JET NOISE GENERATION AND REDUCTION MECHANISMS.•
AD- 749 137
THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME III. PROGRESS TOWARD A UNIFIED THEORY OF JET ENGINE NOISE.•
AD- 749 138
THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME IV. THEORY OF TURBULENCE GENERATED JET NOISE, NOISE RADIATION FROM UPSTREAM SOURCES, AND COMBUSTION NOISE.•
AD- 749 139
THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME V. AN EXPERIMENTAL INVESTIGATION OF JET NOISE VARIATION WITH VELOCITY AND TEMPERATURE.•
AD- 749 140
THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME V - APPENDIX I. TURBULENCE MIXING REGION NOISE DATA.•
AD- 749 141
THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME V - APPENDIX II. SHOCK ASSOCIATED NOISE DATA.•
AD- 749 142
THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME VI. JET FLOW MEASUREMENT AND ANALYSIS WITH SPECIAL EMPHASIS ON REMOTE SENSING DEVICES. CROSSED BEAM SCHLIEREN, LASER DOPPLER VELOCIMETER, PULSED LASER INTERFEROMETER.•
AD- 749 143
THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME I. SUMMARY OF SUPERSONIC JET NOISE STUDIES.•
AD- 749 428
A SIMPLE MODEL OF SHOCK CELL NOISE GENERATION AND ITS REDUCTION.•
AD- 754 943

TAKEOFF
EFFECTS OF SST TAKEOFF PROCEDURES ON NOISE EXPOSURE, AND REVIEW OF EPNL VARIATIONS WITH DISTANCE.•
AD- 722 366

TAXIING
ACOUSTIC ENVIRONMENTS PRODUCED BY THE C-5A AIRCRAFT DURING GROUND OPERATIONS.•
AD- 716 819

URBAN AREAS
SOME PROJECTED EFFECTS OF JET NOISE ON RESIDENTIAL PROPERTY NEAR LOS ANGELES INTERNATIONAL AIRPORT BY 1970.•
AD- 688 478

•JET TRAINING PLANES
NOISE SURVEY FOR ADDITION OF T-

37 AIRCRAFT AT MATHER AFB, CALIFORNIA.*
AD-A010 037

*JET TRANSPORT PLANES
COMMERCIAL AIRCRAFT NOISE DEFINITION - L1011 TRISTAR. VOLUME I.*
AD-A012 371
COMMERCIAL AIRCRAFT NOISE DEFINITION - L-1011 TRISTAR. VOLUME II-L-1011-1 DATA.*
AD-A012 372
COMMERCIAL AIRCRAFT NOISE DEFINITION - L-1011 TRISTAR. VOLUME III - PROGRAM USER'S MANUAL.*
AD-A012 373
COMMERCIAL AIRCRAFT NOISE DEFINITION - L-1011 TRISTAR. VOLUME IV-PROGRAM DESIGN SPECIFICATION.*
AD-A012 374
COMMERCIAL AIRCRAFT NOISE DEFINITION - L-1011 TRISTAR. VOLUME V-COMPUTER PROGRAMMER'S MANUAL.*
AD-A012 375
FAA JT3D QUIET NACELLE RETROFIT FEASIBILITY PROGRAM. VOLUME II. UPPER GOAL GROUND TESTING.*
AD-A012 969
AIRCRAFT NOISE DEFINITION. INDIVIDUAL AIRCRAFT TECHNICAL DATA-MODEL 707.*
AD-A014 642
FAA JT3D QUIET NACELLE RETROFIT FEASIBILITY PROGRAM. VOLUME II. ADDENDUM A. MODEL AND FULL SCALE PLUG NOZZLE TESTS.*
AD-A023 037

COMMERCIAL PLANES
REPRINT: THE ROAR, THE WHINE, THE BOOM AND THE LAW: SOME LEGAL CONCERNS ABOUT THE SST.
AD- 698 398
NOISE PRIMER FOR THE SUPERSONIC TRANSPORT.*
AD- 721 010

FLIGHT PATHS
NOISE AND ITS EFFECT ON AIRCRAFT OPERATION.
AD- 427 666

JET ENGINE NOISE
FACTORS INFLUENCING THE NOISE EXPOSURE UNDER THE LANDING PATH FOR JET TRANSPORT AIRCRAFT.
AD- 617 765

JET PLANE NOISE
NOISE ASSOCIATED WITH OPERATION OF THE C-9A (AEROMEDICAL EVACUATION) AIRCRAFT.*
AD- 715 222
ACOUSTIC ENVIRONMENTS PRODUCED BY THE C-5A AIRCRAFT DURING GROUND OPERATIONS.*
AD- 716 814

JET-ENGINE NOISE
STUDY OF THE EFFECT OF DEPARTURE PROCEDURES ON THE NOISE PRODUCED BY JET TRANSPORT AIRCRAFT.
AD- 617 766

SUPERSONIC AIRCRAFT
SUPERSONIC TRANSPORT NOISE REDUCTION TECHNOLOGY SUMMARY. PHASE I.*
AD- 907 108
SUPERSONIC TRANSPORT NOISE REDUCTION TECHNOLOGY SUMMARY. PHASE I. SUMMARY OF GE4/SST ACOUSTIC SUPPRESSION RESEARCH. VOLUME 1.*
AD- 907 109
SUPERSONIC TRANSPORT NOISE REDUCTION TECHNOLOGY SUMMARY. PHASE I. SUMMARY OF GE4/SST ACOUSTIC SUPPRESSION RESEARCH. VOLUME 2.*
AD- 907 110

TURBOFAN ENGINES
NOISE GENERATION BY CYLINDRICAL SPOILERS IMMERSED IN AN AIR DUCT.*
AD- 767 336

*JETS

SUPERSONIC FLOW
A SIMPLE MODEL OF SHOCK CELL NOISE GENERATION AND ITS REDUCTION.*
AD- 754 943

*LAND USE
TECHNICAL BACKGROUND: INTERIM CRITERIA FOR PLANNING ROTARY-WING AIRCRAFT TRAFFIC PATTERNS, AND SITING NOISE-SENSITIVE LAND USES.*
AD-A031 449
USER MANUAL: INTERIM PROCEDURE FOR PLANNING ROTARY-WING AIRCRAFT TRAFFIC PATTERNS AND SITING NOISE-SENSITIVE LAND USES.*
AD-A031 450

*LANDING FIELDS
COMMUNITY NOISE SURVEY-OFFUTT AFB, NEBRASKA.*
AD- 784 841

*LAUNCHING
TRANSPORT PLANES
RESEARCH STUDY OF COST EFFECTIVENESS OF AUXILIARY LAUNCH SYSTEMS APPLICABLE TO COMMERCIAL TRANSPORTS FOR PURPOSES OF NOISE ABATEMENT.*
AD- 732 269

*LAW
JET PLANE NOISE
AIRCRAFT TRESPASS AND NUISANCE CASES SINCE 1958 BECAUSE OF JET NOISE: ANALYSIS OF LIABILITY.
AD- 620 347

SONIC BOOM
REPRINT: THE ROAR, THE WHINE, THE BOOM AND THE LAW: SOME LEGAL CONCERNS ABOUT THE SST.
AD- 698 398

*LEARNING
AIRCRAFT NOISE
REPRINT: AUTONOMIC RESPONSES TO AIRCRAFT NOISE IN DYSLEXIC CHILDREN.
AD- 737 926

•LOGISTICS
A STUDY OF THE CHARACTERISTICS OF MODERN ENGINE NOISE AND THE RESPONSE CHARACTERISTICS OF STRUCTURES•
AD- 272 210

•MAINTENANCE
A STUDY OF THE CHARACTERISTICS OF MODERN ENGINE NOISE AND THE RESPONSE CHARACTERISTICS OF STRUCTURES•
AD- 272 210

•MATHEMATICAL MODELS
NOISE
PREDICTION METHODS FOR NEAR FIELD NOISE ENVIRONMENTS OF VTOL AIRCRAFT.•
AD- 900 405

•MEETINGS
TECHNICAL EVALUATION REPORT ON FLUID DYNAMICS PANEL SPECIALISTS MEETING ON NOISE MECHANISMS.•
AD- 776 655

•METEOROLOGICAL PHENOMENA
SOUND TRANSMISSION
THE EFFECTS OF LOCAL METEOROLOGICAL FACTORS UPON AIRCRAFT NOISE MEASUREMENTS.•
AD- 754 270

•MICROPHONES
ACOUSTIC NOISE SUPPRESSION IN AIRBORNE COMMUNICATIONS.•
AD-A013 365

•MILITARY FACILITIES
COMMUNITY NOISE EXPOSURE RESULTING FROM AIRCRAFT OPERATIONS: COMPUTER PROGRAM OPERATOR'S MANUAL.•
AD- 785 360
COMMUNITY NOISE EXPOSURE RESULTING FROM AIRCRAFT OPERATIONS. APPENDIX: NOISEMAP PROGRAM OPERATOR'S MANUAL.•
AD-A022 911

JET PLANE NOISE
NOISE SURVEY, F-105 OVERFLIGHTS, WICHITA MOUNTAINS WILDLIFE REFUGE AND VICINITY, FORT SILL, OKLAHOMA.•
AD- 753 113

•NAVAL AIR STATIONS
JET AIRCRAFT NOISE
NOISE FROM AIRCRAFT OPERATIONS, U. S. NAVAL AIR STATION, LEMOORE, CALIFORNIA.•
AD- 754 111

•NOISE
REVIEW OF STUDIES INVESTIGATING HUMAN RESPONSE TO COMMERCIAL AIRCRAFT NOISE.•
AD-A022 356
DEVELOPING NOISE EXPOSURE CONTOURS FOR GENERAL AVIATION AIRPORTS.•
AD-A023 429

ACCEPTABILITY
THE EFFECTS OF DURATION AND BACKGROUND NOISE LEVEL ON PERCEIVED NOISEINESS.•
AD- 696 025

AIRPORT CONTROL TOWERS
NOISE ENVIRONMENTS OF CONTROL TOWERS.•
AD- 752 535

AUDITORY PERCEPTION
GROWTH OF NOISINESS FOR TONES AND BANDS OF NOISE AT DIFFERENT FREQUENCIES.•
AD- 663 904

HEARING
EVALUATION OF PATIENTS SUSPECTED OF HAVING NOISE-INDUCED HEARING LOSS.•
AD- 619 409
THE RELATIONS OF HEARING LOSS TO NOISE EXPOSURE.•
AD- 696 775

HELICOPTERS
BASELINE NOISE MEASUREMENTS OF THE OH-58A HELICOPTER.•
AD- 731 467
HELICOPTER NOISE SYMPOSIUM, HELD AT DURHAM'S HOTEL AND MOTEL, DURHAM, NORTH CAROLINA, ON SEPTEMBER 28-30 1971.•
AD- 748 876

JET AIRCRAFT
ALLOCATING THE COSTS OF ALLEVIATING SUBSONIC JET AIRCRAFT NOISE.•
AD- 648 748

MATHEMATICAL PREDICTION
PREDICTION METHODS FOR NEAR FIELD NOISE ENVIRONMENTS OF VTOL AIRCRAFT.•
AD- 900 405

MEASUREMENT
THE NOISINESS OF DIFFUSE SOUND FIELDS AT HIGH INTENSITIES.•
AD- 708 816

PSYCHOLOGICAL TESTS
CATEGORY SCALING JUDGMENT TESTS ON MOTOR VEHICLE AND AIRCRAFT NOISE.•
AD- 658 755

TURBOJET ENGINES
NEARFIELD INFRASONIC NOISE GENERATED BY THREE TURBOJET AIRCRAFT DURING GROUND RUNUP OPERATIONS.
AD- 623 086

•NOISE POLLUTION
FORCES ON A COANDA SURFACE.•
AD- 775 950
COMMUNITY NOISE EXPOSURE RESULTING FROM AIRCRAFT OPERATIONS: APPLICATION GUIDE FOR PREDICTIVE PROCEDURE.•
AD-A004 818
COMMUNITY NOISE EXPOSURE RESULTING FROM AIRCRAFT OPERATIONS: COMPUTER PROGRAM DESCRIPTION.•
AD-A004 821
COMMUNITY NOISE EXPOSURE

RESULTING FROM AIRCRAFT OPERATIONS: ACQUISITION AND ANALYSIS OF AIRCRAFT NOISE AND PERFORMANCE DATA.•
AD-A017 741
COMMUNITY NOISE EXPOSURE RESULTING FROM AIRCRAFT OPERATIONS. APPENDIX: NOISEMAP PROGRAM OPERATOR'S MANUAL.•
AD-A022 911
DEVELOPING NOISE EXPOSURE CONTOURS FOR GENERAL AVIATION AIRPORTS.•
AD-A023 429
TEST PLAN FOR AIRCRAFT RUNUP NOISE PENALTY EVALUATION.•
AD-A026 209
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 31. B-52H IN-FLIGHT CREW NOISE.•
AD-A029 605
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 32. KC-135A IN-FLIGHT CREW NOISE.•
AD-A029 606
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 33. C-131B IN-FLIGHT CREW NOISE.•
AD-A029 607
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 34. VC-118A IN-FLIGHT CREW/PASSENGER NOISE.•
AD-A029 608
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 35. T-39B IN-FLIGHT CREW/PASSENGER NOISE.•
AD-A029 609
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 37. F-4D IN-FLIGHT CREW NOISE.•
AD-A029 610
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 42. EC-135H IN-FLIGHT CREW NOISE.•
AD-A029 613
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 45. F-111E IN-FLIGHT CREW NOISE.•
AD-A029 614
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 46. O-2A IN-FLIGHT CREW NOISE.•
AD-A029 615
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 47. O-2B IN-FLIGHT CREW NOISE.•
AD-A029 616
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 48. T-33A IN-FLIGHT CREW NOISE.•
AD-A029 617
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 49. T-34A IN-FLIGHT CREW NOISE.•
AD-A029 618
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 50. HH-43B IN-FLIGHT CREW NOISE.•
AD-A029 619
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 51. HH-53C IN-FLIGHT CREW NOISE.•
AD-A029 620
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 52. A-1E IN-FLIGHT CREW NOISE.•
AD-A029 621
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 53. AC-119G IN-FLIGHT CREW NOISE.•
AD-A029 622
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 54. C-123K IN-FLIGHT CREW NOISE.•
AD-A029 623
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 55. AC-130A IN-FLIGHT CREW NOISE.•
AD-A029 624
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 56. HC-130N IN-FLIGHT CREW NOISE.•
AD-A029 625
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 57. T-28D-5 IN-FLIGHT CREW NOISE.•
AD-A029 626
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 60. UH-1N IN-FLIGHT CREW NOISE.•
AD-A029 627
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 61. HH-3E IN-FLIGHT CREW NOISE.•
AD-A029 628
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 62. C-5A IN-FLIGHT CREW/PASSENGER NOISE.•
AD-A029 629
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME I. ORGANIZATION, CONTENT AND APPLICATION.•
AD-A031 865
NOISE CERTIFICATION CONSIDERATIONS FOR HELICOPTERS BASED ON LABORATORY INVESTIGATIONS.•
AD-A032 028
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 65. T-37B AIRCRAFT, NEAR AND FAR-FIELD NOISE.•
AD-A033 531
REPRINT: DEVELOPMENT OF A UNIFORM APPROACH TO CHARACTERIZE NOISE IMPACT ON PEOPLE.
AD-A036 224
ENVIRONMENTAL POLLUTION: NOISE POLLUTION - SONIC BOOM.•
AD-A041 400
VALIDATION OF AIRCRAFT NOISE EXPOSURE PREDICTION PROCEDURE.•
AD-A041 674
FURTHER SENSITIVITY STUDIES OF COMMUNITY-AIRCRAFT NOISE EXPOSURE (NOISEMAP) PREDICTION PROCEDURES.•
AD-A041 781

•NOISE REDUCTION
JET NOISE REDUCTION TECHNIQUE FOR MILITARY RECONNAISSANCE/SURVEILLANCE AIRCRAFT. PHASE I. BENCH/WIND TUNNEL TESTS.•
AD- 774 748
DC-9 NOISE RETROFIT FEASIBILITY. VOLUME I. LOWER GOAL NOISE, PERFORMANCE AND COST EVALUATION.•
AD- 776 127
DC-9 NOISE RETROFIT FEASIBILITY. VOLUME II. UPPER GOAL NOISE, PERFORMANCE AND COST EVALUATION.•
AD- 777 895

SUPERSONIC JET EXHAUST NOISE INVESTIGATION.•
AD- 786 467
ACOUSTIC NOISE SUPPRESSION IN AIRBORNE COMMUNICATIONS.•
AD-A013 365
FAA JT3D QUIET NACELLE RETROFIT FEASIBILITY PROGRAM. VOLUME II. ADDENDUM A. MODEL AND FULL SCALE PLUG NOZZLE TESTS.•
AD-A023 037
EXPERIMENTAL EVALUATION OF NAS MIRAMAR HUSH HOUSE (PROJECT P-114). VOLUME I.•
AD-A024 403
EXPERIMENTAL EVALUATION OF NAS MIRAMAR HUSH HOUSE (PROJECT P-114). VOLUME II.•
AD-A024 404
INVESTIGATION OF FEASIBLE NOZZLE CONFIGURATIONS FOR NOISE REDUCTION IN TURBOFAN AND TURBOJET AIRCRAFT. VOLUME I. SUMMARY AND MULTINOZZLE CONFIGURATIONS.•
AD-A024 958
INVESTIGATION OF FEASIBLE NOZZLE CONFIGURATIONS FOR NOISE REDUCTION IN TURBOFAN AND TURBOJET AIRCRAFT. VOLUME II. SLOT NOZZLE CONFIGURATION.•
AD-A024 959
V/STOL AIRCRAFT NOISE PREDICTION (JET PROPULSORS).•
AD-A028 765
AIRCRAFT CONFIGURATION NOISE REDUCTION. VOLUME I. ENGINEERING ANALYSIS.•
AD-A030 655
AIRCRAFT CONFIGURATION NOISE REDUCTION. VOLUME II. COMPUTER PROGRAM USER'S GUIDE AND OTHER APPENDICES.•
AD-A030 656
AIRCRAFT CONFIGURATION NOISE REDUCTION. VOLUME III. COMPUTER PROGRAM SOURCE LISTING.•
AD-A030 657
HELICOPTER NOISE REDUCTION DESIGN TRADE-OFF STUDY.•
AD-A038 192
INVESTIGATION OF FEASIBLE NOZZLE CONFIGURATIONS FOR NOISE REDUCTION IN TURBOFAN AND TURBOJET AIRCRAFT. VOLUME III. SHROUDED SLOT NOZZLE CONFIGURATIONS.•
AD-A041 782

•ORDNANCE
A STUDY OF THE CHARACTERISTICS OF MODERN ENGINE NOISE AND THE RESPONSE CHARACTERISTICS OF STRUCTURES•
AD- 272 210

•PASSENGER AIRCRAFT
DC-9 NOISE RETROFIT FEASIBILITY. VOLUME II. UPPER GOAL NOISE, PERFORMANCE AND COST EVALUATION.•
AD- 777 895

•PATROL AIRCRAFT
AIRCRAFT NOISE
P-3C AMBIENT AIRCRAFT NOISE.•
AD- 888 802

•PHYSIOLOGY
HEARING
INVESTIGATION OF THE NOISE ASPECTS OF CARRIER DECK JET ENGINE OPERATION, AND EFFECTS OF NOISE SUPPRESSION ON AIRCRAFT MISSION PERFORMANCE. VOLUME I. EFFECTS OF NOISE FROM CARRIER DECK JET ENGINE OPERATION ON HEARING, SPEECH INTERFERENCE, AND SONIC FATIGUE. •
AD- 432 086

•PILOTS
AUDITORY ACUITY
A PROGRESS REPORT ON THE NAVAL AVIATORS' SPEECH DISCRIMINATION TEST.•
AD- 716 766

•PLUG NOZZLES
FAA JT3D QUIET NACELLE RETROFIT FEASIBILITY PROGRAM. VOLUME II. ADDENDUM A. MODEL AND FULL SCALE PLUG NOZZLE TESTS.•
AD-A023 037

FEASIBILITY STUDIES
EXPLORATORY INVESTIGATION OF JET ENGINE SILENCING WITH PLUG NOZZLE CONFIGURATIONS.•
AD- 722 851

•PROBES
PRESSURE
SUPERSONIC JET NOISE INVESTIGATION USING JET FLUCTUATING PRESSURE PROBES.•
AD- 742 296

•PROPELLER NOISE
A NEW CAPABILITY FOR PREDICTING HELICOPTER ROTOR NOISE IN HOVER AND IN FLIGHT.•
AD-A025 982

HELICOPTER ROTORS
AN INVESTIGATION OF NOISE GENERATION ON A HOVERING ROTOR.•
AD- 721 312
AN INVESTIGATION OF NOISE GENERATION ON A HOVERING ROTOR, PART II.•
AD- 753 397

•PROPULSION SYSTEM COMPONENTS
V/STOL ROTARY PROPULSION SYSTEMS - NOISE PREDICTION AND REDUCTION. VOLUME III. COMPUTER PROGRAM USER'S MANUAL.•
AD-A027 363
V/STOL ROTARY PROPULSION SYSTEMS NOISE PREDICTION AND REDUCTION. VOLUME I. IDENTIFICATION OF SOURCES, NOISE GENERATING MECHANISMS, NOISE REDUCTION MECHANISMS, AND PREDICTION METHODOLOGY.•
AD-A027 389
V/STOL ROTARY PROPULSION SYSTEMS NOISE PREDICTION AND REDUCTION. VOLUME II. GRAPHICAL PREDICTION METHODS.•
AD-A027 390

•PROTEINS
NOISE
EFFECT OF AVIATION NOISE ON SOME INDICES OF PROTEIN AND VITAMIN

METABOLISM--TRANSLATION.
AD- 730 065

•PSYCHOACOUSTICS
EVALUATION OF AIRPORT NOISE AND COMMUNITY REACTION.
AD- 263 053
AN EVALUATION OF PSYCHOACOUSTIC PROCEDURES FOR DETERMINING HUMAN RESPONSE TO AIRCRAFT NOISE. VOLUME I. SPECIFICATIONS FOR FOUR EXPERIMENTS.•
AD- 770 185
AN EVALUATION OF PSYCHOACOUSTIC PROCEDURES FOR DETERMINING HUMAN NOISE: VOLUME II. DEMONSTRATED EXAMPLES.•
AD- 770 244
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 58. U-108 IN-FLIGHT CREW NOISE.•
AD-A033 641
USAF BIOENVIRONMENTAL NOISE DATA. VOLUME 59. QU-22B IN-FLIGHT CREW NOISE.•
AD-A033 642
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 64. B-52G AIRCRAFT, NEAR AND FAR-FIELD NOISE.•
AD-A033 643

AIRCRAFT NOISE
DISCUSSION OF THE UTILITY OF AVAILABLE TECHNIQUES FOR MEASURING AIRCRAFT NOISE AND PREDICTING COMMUNITY RESPONSE.•
AD- 638 491
THE EFFECTS OF TEMPORAL AND SPECTRAL COMBINATIONS ON THE JUDGED NOISINESS OF AIRCRAFT SOUNDS.•
AD- 712 734

•PSYCHOLOGICAL TESTS
NOISE
CATEGORY SCALING JUDGMENT TESTS ON MOTOR VEHICLE AND AIRCRAFT NOISE.•
AD- 658 755

•PSYCHOPHYSICS
NOISE CERTIFICATION CRITERIA AND IMPLEMENTATION CONSIDERATIONS FOR V/STOL AIRCRAFT. VOLUME I.•
AD-A018 036
NOISE CERTIFICATION CONSIDERATIONS FOR HELICOPTERS BASED ON LABORATORY INVESTIGATIONS.•
AD-A032 028

AIRCRAFT NOISE
THE NOISINESS OF DIFFUSE SOUND FIELDS AT HIGH INTENSITIES.•
AD- 708 816

•PUBLIC OPINION
COMMUNITY REACTIONS TO AIR FORCE NOISE. PART I. BASIC CONCEPTS AND PRELIMINARY METHODOLOGY.
AD- 267 052
COMMUNITY REACTIONS TO AIR FORCE NOISE. PART II. DATA ON COMMUNITY STUDIES AND THEIR INTERPRETATION.
AD- 267 057

•RADIO COMMUNICATION SYSTEMS
HELICOPTERS
ACTIVE FILTERS APPLIED TO HELICOPTER NOISE REDUCTION.•
AD- 734 812

•READING
RESPONSE(BIOLOGY)
REPRINT: AUTONOMIC RESPONSES TO AIRCRAFT NOISE IN DYSLEXIC CHILDREN.
AD- 737 926

•RECIPROCATING ENGINES
MINI RPV ENGINE NOISE REDUCTION.•
AD-A027 638

•RECONNAISSANCE AIRCRAFT
JET NOISE REDUCTION TECHNIQUE FOR MILITARY RECONNAISSANCE/SURVEILLANCE AIRCRAFT. PHASE I. BENCH/WIND TUNNEL TESTS.•
AD- 774 748

AIRCRAFT NOISE
NOISE ASSOCIATED WITH OPERATION OF AIR FORCE OV-10A AIRCRAFT.•
AD- 712 667

•REMOTELY PILOTED VEHICLES
MINI RPV ENGINE NOISE REDUCTION.•
AD-A027 638

•RESPONSE
AN EVALUATION OF PSYCHOACOUSTIC PROCEDURES FOR DETERMINING HUMAN RESPONSE TO AIRCRAFT NOISE. VOLUME I. SPECIFICATIONS FOR FOUR EXPERIMENTS.•
AD- 770 185
AN EVALUATION OF PSYCHOACOUSTIC PROCEDURES FOR DETERMINING HUMAN NOISE: VOLUME II. DEMONSTRATED EXAMPLES.•
AD- 770 244

•ROTARY COMBUSTION ENGINES
MINI RPV ENGINE NOISE REDUCTION.•
AD-A027 638

•ROTARY WING AIRCRAFT
TECHNICAL BACKGROUND: INTERIM CRITERIA FOR PLANNING ROTARY-WING AIRCRAFT TRAFFIC PATTERNS, AND SITING NOISE-SENSITIVE LAND USES.•
AD-A031 449
USER MANUAL: INTERIM PROCEDURE FOR PLANNING ROTARY-WING AIRCRAFT TRAFFIC PATTERNS AND SITING NOISE-SENSITIVE LAND USES.•
AD-A031 450

•ROTARY WINGS
REPRINT: BROADBAND AND DISCRETE FREQUENCY RADIATION FROM SUBSONIC ROTORS.
AD-A006 779

•SHORT TAKEOFF AIRCRAFT
STOL NOISE PREDICTION AND ATTENUATION MODELS IN SUPPORT OF REGULATORY EFFORT.•
AD- 777 569

NOISE CERTIFICATION CRITERIA AND IMPLEMENTATION CONSIDERATIONS FOR V/STOL AIRCRAFT. VOLUME I.•
AD-A018 036

V/STOL ROTARY PROPULSION SYSTEMS - NOISE PREDICTION AND REDUCTION. VOLUME III. COMPUTER PROGRAM USER'S MANUAL.•
AD-A027 363

V/STOL ROTARY PROPULSION SYSTEMS NOISE PREDICTION AND REDUCTION. VOLUME I. IDENTIFICATION OF SOURCES, NOISE GENERATING MECHANISMS, NOISE REDUCTION MECHANISMS, AND PREDICTION METHODOLOGY.•
AD-A027 389

V/STOL ROTARY PROPULSION SYSTEMS NOISE PREDICTION AND REDUCTION. VOLUME II. GRAPHICAL PREDICTION METHODS.•
AD-A027 390

V/STOL AIRCRAFT NOISE PREDICTION (JET PROPULSORS).•
AD-A028 765

NOISE CERTIFICATION CONSIDERATIONS FOR HELICOPTERS BASED ON LABORATORY INVESTIGATIONS.•
AD-A032 028

USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 58. U-10B IN-FLIGHT CREW NOISE.•
AD-A033 641

HUMAN FACTORS ENGINEERING
NOISE ASSOCIATED WITH OPERATION OF AIR FORCE OV-10A AIRCRAFT.•
AD- 712 667

•SHORT TAKE-OFF PLANES
AIRPLANE NOISE
STOL TRANSPORT PARAMETERS (MILITARY AND COMMERCIAL) WITH SPECIAL EMPHASIS ON NOISE.•
AD- 729 184

•SOCIOLOGY
COMMUNITY REACTIONS TO AIR FORCE NOISE. PART I. BASIC CONCEPTS AND PRELIMINARY METHODOLOGY•
AD- 267 052

COMMUNITY REACTIONS TO AIR FORCE NOISE. PART II. DATA ON COMMUNITY STUDIES AND THEIR INTERPRETATION•
AD- 267 057

•SONAR EQUIPMENT
ANTISUBMARINE AIRCRAFT
SONAR DETECTION OF SUBMARINES BY HELICOPTER.•
AD- 711 910

•SONIC BOOM
ENVIRONMENTAL POLLUTION; NOISE POLLUTION - SONIC BOOM.•
AD-A041 400

BIBLIOGRAPHIES
AIRCRAFT NOISE AND SONIC BOOM. SELECTED REFERENCES.•
AD- 699 915

LAW
REPRINT: THE ROAR, THE WHINE, THE BOOM AND THE LAW: SOME LEGAL CONCERNS ABOUT THE SST.
AD- 698 398

•SOUND PITCH
ATTENUATION
A SIMPLE MODEL OF SHOCK CELL NOISE GENERATION AND ITS REDUCTION.•
AD- 754 943

•SOUND TRANSMISSION
EFFECT OF TEMPERATURE AND HUMIDITY ON AIRCRAFT NOISE PROPAGATION.•
AD-A019 699

AIRCRAFT NOISE
CORRELATION OF ACTUAL AND ANALYTICAL HELICOPTER AURAL DETECTION CRITERIA. VOLUME I.•
AD-B002 067

BOUNDARY VALUE PROBLEMS
REPRINT: ON THE TRANSMISSION OF SOUND WAVES THROUGH A BLADE ROW.
AD- 738 511

METEOROLOGICAL PHENOMENA
THE EFFECTS OF LOCAL METEOROLOGICAL FACTORS UPON AIRCRAFT NOISE MEASUREMENTS.•
AD- 754 270

•SPEECH
INTELLIGIBILITY
THE SPEECH INTERFERENCE EFFECTS OF AIRCRAFT NOISE.•
AD- 660 712

AUDITORY PROCESSING FOR SPEECH INTELLIGIBILITY IMPROVEMENT.•
AD- 717 394

SPEECH INTELLIGIBILITY TESTING WITH THE MODIFIED RHYME TEST IN AVIATION TYPE NOISE.•
AD- 765 470

INTERFERENCE
SIX INDICES FOR PREDICTING SPEECH INTERFERENCE WITHIN AIRCRAFT.•
AD- 718 098

JET PLANE NOISE
NOISE AND SPEECH LEVELS ASSOCIATED WITH THE F-111A PREP AREA, MCCLELLAN AFB.•
AD- 744 828

TRAINING
EXPERIMENTAL COMPARISON OF 5 CONDITIONS FOR VOICE COMMUNICATION SYSTEM.
AD- 638 355

•SPEECH RECOGNITION
AIRCRAFT NOISE
SOME FACTORS INFLUENCING HUMAN RESPONSE TO AIRCRAFT NOISE: MASKING OF SPEECH AND VARIABILITY OF SUBJECTIVE JUDGMENTS.
AD- 617 935

PERFORMANCE(HUMAN)
SPEECH INTELLIGIBILITY TESTING WITH THE MODIFIED RHYME TEST IN AVIATION TYPE NOISE.•
AD- 765 470

•SPOILERS
AERODYNAMIC NOISE
NOISE GENERATION BY CYLINDRICAL SPOILERS IMMERSED IN AN AIR DUCT.•
AD- 767 336

•STANDARDS
JET PLANE NOISE
AIRCRAFT NOISE STANDARDS AND REGULATIONS.•
AD- 723 579

•STRESS(PHYSIOLOGY)
REVIEW OF STUDIES INVESTIGATING HUMAN RESPONSE TO COMMERCIAL AIRCRAFT NOISE.•
AD-A022 356

AIRCRAFT NOISE
BIOACOUSTIC NOISE PROBLEMS DURING OPERATION OF C-7A CARIBOU AIRCRAFT.•
AD- 738 627

AIRPLANE NOISE
EFFECT OF AVIATION NOISE ON SOME INDICES OF PROTEIN AND VITAMIN METABOLISM--TRANSLATION.
AD- 730 065

JET ENGINE NOISE
STANDARDIZATION OF AVIATION NOISE STRESS--TRANSLATION.
AD- 691 053

•STRUCTURAL RESPONSE
ACOUSTIC EMISSION STRUCTURE-BORNE NOISE MEASUREMENTS ON AIRCRAFT DURING FLIGHT.•
AD-A033 188

•SUBSONIC FLOW
SUPERSONIC JET EXHAUST NOISE INVESTIGATION. VOLUME III. COMPUTER USER'S MANUAL FOR AERO-ACOUSTIC PREDICTIONS.•
AD-A038 614

•SUPERSONIC AIRCRAFT
SUPERSONIC JET EXHAUST NOISE INVESTIGATION.•
AD- 786 467
THE GENERATION AND RADIATION OF SUPERSONIC JET EXHAUST NOISE; A PROGRESS REPORT ON STUDIES OF JET NOISE GENERATION AND RADIATION, TURBULENCE STRUCTURE AND LASER VELOCIMETRY.•
AD- 787 192
THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME I. SUMMARY.•
AD-A032 478
SUPERSONIC JET EXHAUST NOISE INVESTIGATION. VOLUME II. TECHNICAL REPORT.•
AD-A038 613
SUPERSONIC JET EXHAUST NOISE INVESTIGATION. VOLUME III. COMPUTER USER'S MANUAL FOR AERO-ACOUSTIC PREDICTIONS.•
AD-A038 614
SUPERSONIC JET EXHAUST NOISE INVESTIGATION. VOLUME I. SUMMARY REPORT.•
AD-A038 682

JET PLANE NOISE
NOISE PRIMER FOR THE SUPERSONIC TRANSPORT.•
AD- 721 010
EFFECTS OF SST TAKEOFF PROCEDURES ON NOISE EXPOSURE, AND REVIEW OF EPNL VARIATIONS WITH DISTANCE.•
AD- 722 366
SUPERSONIC JET EXHAUST NOISE.•
AD- 747 774
THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME II. FUTURE STUDIES FOR DEFINITION OF SUPERSONIC JET NOISE GENERATION AND REDUCTION MECHANISMS.•
AD- 749 137
THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME III. PROGRESS TOWARD A UNIFIED THEORY OF JET ENGINE NOISE.•
AD- 749 138
THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME IV. THEORY OF TURBULENCE GENERATED JET NOISE, NOISE RADIATION FROM UPSTREAM SOURCES, AND COMBUSTION NOISE.•
AD- 749 139
THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME V. AN EXPERIMENTAL INVESTIGATION OF JET NOISE VARIATION WITH VELOCITY AND TEMPERATURE.•
AD- 749 140
THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME V - APPENDIX I. TURBULENCE MIXING REGION NOISE DATA.•
AD- 749 141
THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME V - APPENDIX II. SHOCK ASSOCIATED NOISE DATA.•
AD- 749 142
THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME VI. JET FLOW MEASUREMENT AND ANALYSIS WITH SPECIAL EMPHASIS ON REMOTE SENSING DEVICES. CROSSED BEAM SCHLIEREN, LASER DOPPLER VELOCIMETER, PULSED LASER INTERFEROMETER.•
AD- 749 143
THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME I. SUMMARY OF SUPERSONIC JET NOISE STUDIES.•
AD- 749 428
A SIMPLE MODEL OF SHOCK CELL NOISE GENERATION AND ITS REDUCTION.•
AD- 754 943

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AD- 698 398

•SUPERSONIC FLOW
SUPERSONIC JET EXHAUST NOISE INVESTIGATION. VOLUME II. TECHNICAL REPORT.•
AD-A038 613
SUPERSONIC JET EXHAUST NOISE

INVESTIGATION. VOLUME III. COMPUTER USER'S MANUAL FOR AERO-ACOUSTIC PREDICTIONS.*
AD-A038 614

SUPPRESSION
EXPERIMENTAL EVALUATION OF NAS MIRAMAR HUSH HOUSE (PROJECT P-114). VOLUME I.*
AD-A024 403
EXPERIMENTAL EVALUATION OF NAS MIRAMAR HUSH HOUSE (PROJECT P-114). VOLUME II.*
AD-A024 404

*SUPPRESSORS
JET ENGINE NOISE
SUPERSONIC TRANSPORT NOISE REDUCTION TECHNOLOGY SUMMARY. PHASE I.*
AD- 907 108
SUPERSONIC TRANSPORT NOISE REDUCTION TECHNOLOGY SUMMARY. PHASE I. SUMMARY OF GE4/SST ACOUSTIC SUPPRESSION RESEARCH. VOLUME 1.*
AD- 907 109
SUPERSONIC TRANSPORT NOISE REDUCTION TECHNOLOGY SUMMARY. PHASE I. SUMMARY OF GE4/SST ACOUSTIC SUPPRESSION RESEARCH. VOLUME 2.*
AD- 907 110

*TAKEOFF
JET ENGINE NOISE
STUDY OF THE EFFECT OF DEPARTURE PROCEDURES ON THE NOISE PRODUCED BY JET TRANSPORT AIRCRAFT.
AD- 617 766

JET PLANE NOISE
EFFECTS OF SST TAKEOFF PROCEDURES ON NOISE EXPOSURE, AND REVIEW OF EPNL VARIATIONS WITH DISTANCE.*
AD- 722 366
MEASUREMENT AND ANALYSIS OF NOISE FROM FOUR AIRCRAFT DURING APPROACH AND DEPARTURE OPERATIONS (727, KC-135, 707-3208, AND DC-9).*
AD- 740 563

*TAXIING
JET PLANE NOISE
ACOUSTIC ENVIRONMENTS PRODUCED BY THE C-5A AIRCRAFT DURING GROUND OPERATIONS.*
AD- 716 814

*TERMINAL FLIGHT FACILITIES
AIRCRAFT NOISE
STUDY OF NOISE IN AIR ROUTE TRAFFIC CONTROL CENTER, FLIGHT SERVICE STATION, AIR TRAFFIC CONTROL TOWER AND REMOTE FACILITIES.*
AD- 743 095

*TEST CONSTRUCTION(PSYCHOLOGY)
EFFECTIVENESS
A PROGRESS REPORT ON THE NAVAL AVIATORS' SPEECH DISCRIMINATION TEST.*
AD- 716 766

*TEST FACILITIES
HIGH VELOCITY JET NOISE SOURCE LOCATION AND REDUCTION. TASK I. ACTIVATION OF FACILITIES AND VALIDATION OF SOURCE LOCATION TECHNIQUES.*
AD-A041 898

JET ENGINE NOISE
RESEARCH ON NOISE GENERATED BY DUCTED AIR-FUEL COMBUSTION SYSTEMS.*
AD- 754 094

*THRESHOLDS(PHYSIOLOGY)
AIRCRAFT NOISE
NOISINESS JUDGMENTS OF HELICOPTER FLYOVERS.*
AD- 698 503

*THRUST AUGMENTOR NOZZLES
INVESTIGATION OF FEASIBLE NOZZLE CONFIGURATIONS FOR NOISE REDUCTION IN TURBOFAN AND TURBOJET AIRCRAFT. VOLUME III. SHROUDED SLOT NOZZLE CONFIGURATIONS.*
AD-A041 782

*TOLERANCES(PHYSIOLOGY)
STANDARDIZATION
STANDARDIZATION OF AVIATION NOISE STRESS--TRANSLATION.
AD- 691 053

*TRAINING DEVICES
SPEECH
EXPERIMENTAL COMPARISON OF 5 CONDITIONS FOR VOICE COMMUNICATION SYSTEM.
AD- 638 355

*TRAINING PLANES
AIRCRAFT NOISE
COCKPIT NOISE WITHIN TRAINER AIRCRAFT.*
AD- 717 852

AIRPLANE NOISE
NOISE ASSOCIATED WITH T-41A AND T-41C TRAINER AIRCRAFT.*
AD- 731 128

*TRANSPORT AIRCRAFT
AIRCRAFT NOISE DEFINITION - INDIVIDUAL AIRCRAFT TECHNICAL DATA--MODEL 727.*
AD-A013 177
AIRCRAFT NOISE DEFINITION. INDIVIDUAL AIRCRAFT TECHNICAL DATA MODEL - 737.*
AD-A014 964
ACOUSTIC EMISSION STRUCTURE-BORNE NOISE MEASUREMENTS ON AIRCRAFT DURING FLIGHT.*
AD-A033 188

AIRCRAFT NOISE
NOISE CONTOURS FOR SHORT AND MEDIUM RANGE TRANSPORT AIRCRAFT AND BUSINESS AIRCRAFT.
AD- 617 763
MEASUREMENT AND ANALYSIS OF BIOACOUSTIC ENVIRONMENTS ABOARD AC-1196 AND AC-130A GUNSHIPS.*
AD- 699 593

*TRANSPORT PLANES

AIRPLANE NOISE
STOL TRANSPORT PARAMETERS (MILITARY AND COMMERCIAL) WITH SPECIAL EMPHASIS ON NOISE.•
AD- 729 184

LAUNCHING
RESEARCH STUDY OF COST EFFECTIVENESS OF AUXILIARY LAUNCH SYSTEMS APPLICABLE TO COMMERCIAL TRANSPORTS FOR PURPOSES OF NOISE ABATEMENT.•
AD- 732 264

•TURBOFAN ENGINES
EFFECTS OF FINITE DUCT LENGTH AND BLADE CHORD ON NOISE GENERATION BY A ROTATING BLADE ROW,•
AD- 782 165
CORE ENGINE NOISE CONTROL PROGRAM. VOLUME I. IDENTIFICATION OF COMPONENT NOISE SOURCES.•
AD-A013 128
CORE ENGINE NOISE CONTROL PROGRAM. VOLUME II. IDENTIFICATION OF NOISE GENERATION AND SUPPRESSION MECHANISMS.•
AD-A013 129
CORE ENGINE NOISE CONTROL PROGRAM. VOLUME III. PREDICTION METHODS.•
AD-A013 131
INVESTIGATION OF FEASIBLE NOZZLE CONFIGURATIONS FOR NOISE REDUCTION IN TURBOFAN AND TURBOJET AIRCRAFT. VOLUME I. SUMMARY AND MULTINOZZLE CONFIGURATIONS.•
AD-A024 958
INVESTIGATION OF FEASIBLE NOZZLE CONFIGURATIONS FOR NOISE REDUCTION IN TURBOFAN AND TURBOJET AIRCRAFT. VOLUME II. SLOT NOZZLE CONFIGURATION.•
AD-A024 959
CORE ENGINE NOISE PROGRAM. VOLUME III. PREDICTION METHODS -- SUPPLEMENT I. - EXTENSION OF PREDICTION METHODS.•
AD-A030 376
727/JT8D JET AND FAN NOISE FLIGHT EFFECTS STUDY.•
AD-A031 877
COMBUSTION NOISE INVESTIGATION.•
AD-A038 154
INVESTIGATION OF FEASIBLE NOZZLE CONFIGURATIONS FOR NOISE REDUCTION IN TURBOFAN AND TURBOJET AIRCRAFT. VOLUME III. SHROUDED SLOT NOZZLE CONFIGURATIONS.•
AD-A041 782

AXIAL FLOW COMPRESSORS
FAN/COMPRESSOR NOISE RESEARCH. VOLUME I. DETAILED DISCUSSION.•
AD- 740 513
FAN/COMPRESSOR NOISE RESEARCH. VOLUME II. DETAILED DISCUSSION.•
AD- 740 514
FAN/COMPRESSOR NOISE RESEARCH. VOLUME III. COMPILATION OF TEST DATA.•
AD- 740 515
FAN/COMPRESSOR NOISE RESEARCH. VOLUME IV. COMPILATION OF TEST DATA.•
AD- 740 516

COMPRESSOR NOISE
FAN-COMPRESSOR NOISE; PREDICTION, RESEARCH, AND REDUCTION STUDIES.•
AD- 733 590

JET ENGINE NOISE
STATE-OF-THE-ART REVIEW OF TURBINE ENGINE INLET NOISE.•
AD- 753 000

JET TRANSPORT PLANES
NOISE GENERATION BY CYLINDRICAL SPOILERS IMMERSED IN AN AIR DUCT.•
AD- 767 336

•TURBOJET ENGINES
NEAR FIELD NOISE PREDICTION FOR A LINEAR ARRAY OF TURBOJET ENGINES.•
AD-A001 329
BYPASS TURBOJET ENGINE NOISE CHARACTERISTICS ON THE TEST STAND--TRANSLATION.
AD-A003 086
INVESTIGATION OF FEASIBLE NOZZLE CONFIGURATIONS FOR NOISE REDUCTION IN TURBOFAN AND TURBOJET AIRCRAFT. VOLUME I. SUMMARY AND MULTINOZZLE CONFIGURATIONS.•
AD-A024 958
INVESTIGATION OF FEASIBLE NOZZLE CONFIGURATIONS FOR NOISE REDUCTION IN TURBOFAN AND TURBOJET AIRCRAFT. VOLUME II. SLOT NOZZLE CONFIGURATION.•
AD-A024 959
INVESTIGATION OF FEASIBLE NOZZLE CONFIGURATIONS FOR NOISE REDUCTION IN TURBOFAN AND TURBOJET AIRCRAFT. VOLUME III. SHROUDED SLOT NOZZLE CONFIGURATIONS.•
AD-A041 782

AIR POLLUTION
NOISE AND AIR POLLUTION EMISSIONS FROM NOISE SUPPRESORS FOR ENGINE TEST STANDS AND AIRCRAFT POWER CHECK PADS.•
AD- 757 862

DESIGN
727NOISE RETROFIT FEASIBILITY. VOLUME I. LOWER GOAL DESIGN, FABRICATION, GROUND AND FLIGHT TESTING.•
AD- 756 040
727 NOISE RETROFIT FEASIBILITY. VOLUME II. UPPER GOAL DESIGN, FABRICATION, AND GROUND TESTING.•
AD- 763 596
727 NOISE RETROFIT FEASIBILITY. VOLUME III. UPPER GOAL FLIGHT TESTING AND PROGRAM SUMMARY.•
AD- 768 850

NOISE
NEARFIELD INFRASONIC NOISE GENERATED BY THREE TURBOJET AIRCRAFT DURING GROUND RUNUP OPERATIONS.
AD- 623 086

NOZZLE GAS FLOW
FAR FIELD NOISE GENERATION BY COAXIAL FLOW JET EXHAUSTS. VOLUME

II. COMPILATION OF TEST RESULTS.•
AD- 748 039

•TURBOJET EXHAUST NOZZLES
INVESTIGATION OF FEASIBLE NOZZLE CONFIGURATIONS FOR NOISE REDUCTION IN TURBOFAN AND TURBOJET AIRCRAFT. VOLUME I. SUMMARY AND MULTINOZZLE CONFIGURATIONS.•
AD-A024 958
INVESTIGATION OF FEASIBLE NOZZLE CONFIGURATIONS FOR NOISE REDUCTION IN TURBOFAN AND TURBOJET AIRCRAFT. VOLUME II. SLOT NOZZLE CONFIGURATION.•
AD-A024 959

JET ENGINE NOISE
NOISE GENERATION BY CYLINDRICAL SPOILERS IMMERSED IN AN AIR DUCT.•
AD- 767 336

•TURBOJET INLETS
JET ENGINE NOISE
STATE-OF-THE-ART REVIEW OF TURBINE ENGINE INLET NOISE.•
AD- 753 000

•TURBOPROP ENGINES
ENGINE NOISE
FACTORS INFLUENCING THE NOISE EXPOSURE UNDER THE LANDING PATH FOR JET TRANSPORT AIRCRAFT.
AD- 617 765

•TURBULENT DIFFUSION
THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME III. TURBULENT MIXING NOISE DATA.•
AD-A032 882

•ULTRASONIC RADIATION
TOLERANCES(PHYSIOLOGY)
THE EFFECTS OF ULTRASONIC VIBRATIONS ON MAN.•
AD- 639 363

•UNDERWATER SOUND
AIRCRAFT NOISE
COMPUTER PROGRAMS FOR UNDERWATER SOUND FIELDS DUE TO AIRBORNE SOURCES.•
AD- 891 216

AIRPLANE ENGINE NOISE
FREQUENCY DEPENDENCE OF SOUND TRANSMITTED FROM AN AIRBORNE SOURCE INTO THE OCEAN,•
AD- 744 590

•UNITED STATES GOVERNMENT
CIVIL AVIATION
AIRCRAFT NOISE STANDARDS AND REGULATIONS.•
AD- 723 579

•URBAN AREAS
COMMUNITY NOISE EXPOSURE RESULTING FROM AIRCRAFT OPERATIONS: APPLICATION GUIDE FOR PREDICTIVE PROCEDURE.•
AD-A004 818
COMMUNITY NOISE EXPOSURE RESULTING FROM AIRCRAFT OPERATIONS: COMPUTER PROGRAM DESCRIPTION.•
AD-A004 821
COMMUNITY NOISE EXPOSURE RESULTING FROM AIRCRAFT OPERATIONS: ACQUISITION AND ANALYSIS OF AIRCRAFT NOISE AND PERFORMANCE DATA.•
AD-A017 741

AIRCRAFT NOISE
ANALYSIS OF COMMUNITY AND AIRPORT RELATIONSHIPS/NOISE ABATEMENT. VOLUME I. AN APPROACH TO ANALYSIS OF AIRCRAFT NOISE PROBLEMS USING COMPUTER-AIDED TECHNIQUES.
AD- 618 190
COMPATIBLE LAND USE PLANNING ON AND AROUND AIRPORTS.•
AD- 650 267
A STUDY--INSULATING HOUSES FROM AIRCRAFT NOISE.•
AD- 666 376

AIRPORTS
PROCEDURES FOR DEVELOPING NOISE EXPOSURE FORECAST AREAS FOR AIRCRAFT FLIGHT OPERATIONS.•
AD- 660 706
1965, 1970 AND 1975 NOISE EXPOSURE FORECAST AREAS FOR CHICAGO O'HARE INTERNATIONAL AIRPORT.•
AD- 660 708
1965, 1970 AND 1975 NOISE EXPOSURE FORECAST AREAS FOR LOS ANGELES INTERNATIONAL AIRPORT.•
AD- 660 709
1965, 1970 AND 1975 NOISE EXPOSURE FORECAST AREAS FOR JOHN F. KENNEDY AIRPORT, NEW YORK.•
AD- 660 710

JET PLANE NOISE
SOME PROJECTED EFFECTS OF JET NOISE ON RESIDENTIAL PROPERTY NEAR LOS ANGELES INTERNATIONAL AIRPORT BY 1970.•
AD- 688 478

•URBAN PLANNING
COMMUNITY NOISE EXPOSURE RESULTING FROM AIRCRAFT OPERATIONS: APPLICATION GUIDE FOR PREDICTIVE PROCEDURE.•
AD-A004 818
COMMUNITY NOISE EXPOSURE RESULTING FROM AIRCRAFT OPERATIONS: COMPUTER PROGRAM DESCRIPTION.•
AD-A004 821

AIRCRAFT NOISE
LAND USE PLANNING RELATING TO AIRCRAFT NOISE, APPENDIX A.
AD- 617 954
ANALYSIS OF COMMUNITY AND AIRPORT RELATIONSHIPS NOISE ABATEMENT. VOLUME II. DEVELOPMENT OF AIRCRAFT NOISE COMPATIBILITY CRITERIA FOR VARIED LAND USES.
AD- 618 191

AIRPLANE ENGINE NOISE
LAND USE PLANNING RELATING TO AIRCRAFT NOISE.
AD- 615 015

AIRPORTS
COMPATIBLE LAND USE PLANNING ON AND AROUND AIRPORTS.•

AD- 650 267

CALIFORNIA
NOISE FROM AIRCRAFT OPERATIONS AT MIRAMAR NAVAL AIR STATION, CALIFORNIA AND LAND USE INTERPRETATIONS.*
AD- 790 393

JET ENGINE NOISE
PROCEDURES FOR DEVELOPING NOISE EXPOSURE FORECAST AREAS FOR AIRCRAFT FLIGHT OPERATIONS.*
AD- 660 706
1965, 1970 AND 1975 NOISE EXPOSURE FORECAST AREAS FOR CHICAGO O'HARE INTERNATIONAL AIRPORT.*
AD- 660 708
1965, 1970 AND 1975 NOISE EXPOSURE FORECAST AREAS FOR LOS ANGELES INTERNATIONAL AIRPORT.*
AD- 660 709
1965, 1970 AND 1975 NOISE EXPOSURE FORECAST AREAS FOR JOHN F. KENNEDY AIRPORT, NEW YORK.*
AD- 660 710

UNITED STATES GOVERNMENT
AIDS AVAILABLE FOR COMPATIBLE LAND USE PLANNING AROUND AIRPORTS.*
AD- 650 271

*UTILITY AIRCRAFT
USAF BIOENVIRONMENTAL NOISE DATA. VOLUME 59. QU-22B IN-FLIGHT CREW NOISE.*
AD-A033 642

*VERTICAL TAKEOFF AIRCRAFT
V/STOL ROTARY PROPULSION SYSTEMS - NOISE PREDICTION AND REDUCTION. VOLUME III. COMPUTER PROGRAM USER'S MANUAL.*
AD-A027 363
V/STOL ROTARY PROPULSION SYSTEMS NOISE PREDICTION AND REDUCTION. VOLUME I. IDENTIFICATION OF SOURCES, NOISE GENERATING MECHANISMS, NOISE REDUCTION MECHANISMS, AND PREDICTION METHODOLOGY.*
AD-A027 389
V/STOL ROTARY PROPULSION SYSTEMS NOISE PREDICTION AND REDUCTION. VOLUME II. GRAPHICAL PREDICTION METHODS.*
AD-A027 390

AIRCRAFT NOISE
NOISE ENVIRONS AND HELMET PERFORMANCE FOR THE P-1127 V/STOL AIRCRAFT.*
AD- 686 736
PREDICTION METHODS FOR NEAR FIELD NOISE ENVIRONMENTS OF VTOL AIRCRAFT.*
AD- 900 405

NOISE
EVALUATION OF NOISE PROBLEMS ANTICIPATED WITH FUTURE VTOL AIRCRAFT.*
AD- 658 448

*VITAMINS
NOISE
EFFECT OF AVIATION NOISE ON SOME INDICES OF PROTEIN AND VITAMIN METABOLISM--TRANSLATION.
AD- 730 065

*VOICE COMMUNICATION SYSTEMS
AUDITORY PERCEPTION
NOISE LEVELS ON AIRCRAFT-CARRIER FLIGHT DECKS, AND THEIR EFFECTS.*
AD- 729 067

*VOICE COMMUNICATIONS
INTELLIGIBILITY
SIX INDICES FOR PREDICTING SPEECH INTERFERENCE WITHIN AIRCRAFT.*
AD- 718 098

TRAINING DEVICES
EXPERIMENTAL COMPARISON OF 5 CONDITIONS FOR VOICE COMMUNICATION SYSTEM.
AD- 638 355

*WATER INJECTION
ACOUSTIC ATTENUATION BY VAPORIZATION OF LIQUID DROPLETS -- APPLICATION TO NOISE REDUCTION IN AIRCRAFT POWERPLANTS.*
AD-A009 644

TITLE INDEX

727/JT8D JET AND FAN NOISE FLIGHT EFFECTS STUDY.(U) AD-A031 877
•JET ENGINE NOISE

727NOISE RETROFIT FEASIBILITY. VOLUME I. LOWER GOAL DESIGN, FABRICATION, GROUND AND FLIGHT TESTING.(U) AD- 756 040
•JET ENGINE NOISE

727 NOISE RETROFIT FEASIBILITY. VOLUME II. UPPER GOAL DESIGN, FABRICATION, AND GROUND TESTING.(U) AD- 763 596
•JET ENGINE NOISE

727 NOISE RETROFIT FEASIBILITY. VOLUME III. UPPER GOAL FLIGHT TESTING AND PROGRAM SUMMARY.(U) AD- 768 880
•JET ENGINE NOISE

1965, 1970 AND 1975 NOISE EXPOSURE FORECAST AREAS FOR CHICAGO O'HARE INTERNATIONAL AIRPORT.(U) AD- 660 708
•AIRPORTS

1965, 1970 AND 1975 NOISE EXPOSURE FORECAST AREAS FOR JOHN F. KENNEDY AIRPORT, NEW YORK.(U) AD- 660 710
•AIRPORTS

1965, 1970 AND 1975 NOISE EXPOSURE FORECAST AREAS FOR LOS ANGELES INTERNATIONAL AIRPORT.(U) AD- 660 709
•AIRPORTS

ACOUSTIC ATTENUATION BY VAPORIZATION OF LIQUID DROPLETS -- APPLICATION TO NOISE REDUCTION IN AIRCRAFT POWERPLANTS.(U) AD-A009 644
•JET ENGINE NOISE

ACOUSTIC EMISSION STRUCTURE-BORNE NOISE MEASUREMENTS ON AIRCRAFT DURING FLIGHT.(U) AD-A033 188
•TRANSPORT AIRCRAFT

ACOUSTIC ENVIRONMENTS OF THE F-111A AIRCRAFT DURING GROUND RUNUP.(U) AD- 673 346
•JET FIGHTERS

ACOUSTIC ENVIRONMENTS PRODUCED BY THE C-5A AIRCRAFT DURING GROUND OPERATIONS.(U) AD- 716 814
•JET PLANE NOISE

ACOUSTIC NOISE SUPPRESSION IN AIRBORNE COMMUNICATIONS.(U) AD-A013 365
•MICROPHONES

ACOUSTICAL EVALUATION OF TYPE II AIRCRAFT GROUND RUNUP NOISE SUPPRESSOR AT TRUAX AIR FORCE BASE, WISCONSIN(U) AD- 294 189
•JET ENGINE NOISE

ACTIVE FILTERS APPLIED TO HELICOPTER NOISE REDUCTION.(U) AD- 734 812
•ELECTRIC FILTERS

AIDS AVAILABLE FOR COMPATIBLE LAND USE PLANNING AROUND AIRPORTS.(U) AD- 650 271
•AIRPORTS

AIR TRAFFIC GROWTH, AIRLINE FINANCES, AND PUBLIC BENEFITS IN RELATION TO THE COST OF NEW PROGRAMS TO ALLEVIATE JET AIRCRAFT NOISE NEAR AIRPORTS.(U) AD- 647 393
•JET PLANE NOISE

AIR TRANSPORTATION IN THE 1970'S: PROBLEMS AND OPPORTUNITIES.(U) AD- 664 040
•AIR TRANSPORTATION

AIRCRAFT CONFIGURATION NOISE REDUCTION. VOLUME I. ENGINEERING ANALYSIS.(U) AD-A030 655
•AIRCRAFT NOISE

AIRCRAFT CONFIGURATION NOISE REDUCTION. VOLUME II. COMPUTER PROGRAM USER'S GUIDE AND OTHER APPENDICES.(U) AD-A030 656
•AIRCRAFT NOISE

AIRCRAFT CONFIGURATION NOISE REDUCTION. VOLUME III. COMPUTER PROGRAM SOURCE LISTING.(U) AD-A030 657
•AIRCRAFT NOISE

AIRCRAFT NOISE AND SONIC BOOM. SELECTED REFERENCES.(U) AD- 699 915
•SONIC BOOM

AIRCRAFT NOISE DEFINITION. INDIVIDUAL AIRCRAFT TECHNICAL DATA-MODEL 707.(U) AD-A014 642
•AIRCRAFT NOISE

AIRCRAFT NOISE DEFINITION - INDIVIDUAL AIRCRAFT TECHNICAL DATA--MODEL 727.(U) AD-A013 177
•COMMERCIAL AIRCRAFT

AIRCRAFT NOISE DEFINITION. INDIVIDUAL AIRCRAFT TECHNICAL DATA MODEL - 737.(U) AD-A014 964
•COMMERCIAL AIRCRAFT

AIRCRAFT NOISE DEFINITION. PHASE I. ANALYSIS OF EXISTING DATA FOR THE DC-8, DC-9 AND DC-10 AIRCRAFT.(U) AD-A016 276
•COMMERCIAL AIRCRAFT

AIRCRAFT NOISE DEFINITION. PHASE II. ANALYSIS OF FLYOVER-NOISE DATA FOR THE DC-8-61 AIRCRAFT.(U) AD-A019 759
•AIRCRAFT NOISE

AIRCRAFT NOISE DEFINITION.(U) AD-A012 384
•AIRCRAFT NOISE

AIRCRAFT NOISE EVALUATION.(U) AD- 676 230
•AIRCRAFT NOISE

AIRCRAFT NOISE GENERATION, EMISSION AND REDUCTION.(U) AD-A012 090
•JET AIRCRAFT

AIRCRAFT NOISE AD- 723 579
STANDARDS AND REGULATIONS.(U)
•JET PLANE NOISE

AIRCRAFT SIDELINE AD-A042 076
NOISE: A TECHNICAL REVIEW AND
ANALYSIS OF CONTEMPORARY DATA.(U)
•AIRCRAFT NOISE

AIRCRAFT SOUND AD- 786 612
DESCRIPTION SYSTEM (ASDS)
APPLICATION PROCEDURES. VOLUME I.
OVERVIEW.(U)
•AIRPORTS

AIRCRAFT SOUND AD- 786 613
DESCRIPTION SYSTEM (ASDS)
APPLICATION PROCEDURES. VOLUME II.
MANUAL APPLICATION PROCEDURES.(U)
•AIRPORTS

AIRCRAFT SOUND AD-A013 435
DESCRIPTION SYSTEM (ASDS)
APPLICATION PROCEDURES. VOLUME III.
DATA TABLES.(U)
•AIRPORTS

AIRCRAFT SOUND AD- 786 615
DESCRIPTION SYSTEM (ASDS)
APPLICATION PROCEDURES. VOLUME IV.
COMPUTER APPLICATION PROCEDURES.(U)
•AIRPORTS

AIRCRAFT SOUND AD- 758 588
DESCRIPTION SYSTEM BACKGROUND AND
APPLICATION.(U)
•AIRCRAFT NOISE

AIRFRAME NOISE AD-A039 664
PREDICTION METHOD.(U)
•AIRCRAFT NOISE

AIRPORT NOISE AD-A028 511
MONITORING SYSTEMS.(U)
•AIRPORTS

AIRSPEED INFLUENCE ON AD- 711 359
NOISE WITHIN FIXED- AND ROTARY-WING
AIRCRAFT.(U)
•AIRCRAFT NOISE

ALLOCATING THE COSTS OF AD- 698 748
ALLEVIATING SUBSONIC JET AIRCRAFT
NOISE.(U)
•NOISE

ANALYSIS OF COMMUNITY AD- 695 955
AND AIRPORT RELATIONSHIPS/NOISE
ABATEMENT.(U)
•AIRCRAFT NOISE

ANALYSIS OF COMMUNITY AD- 618 190
AND AIRPORT RELATIONSHIPS/NOISE
ABATEMENT. VOLUME I. AN APPROACH
TO ANALYSIS OF AIRCRAFT NOISE
PROBLEMS USING COMPUTER-AIDED
TECHNIQUES.(U)
•AIRCRAFT NOISE

ANALYSIS OF COMMUNITY AD- 618 191
AND AIRPORT RELATIONSHIPS NOISE
ABATEMENT. VOLUME II. DEVELOPMENT
OF AIRCRAFT NOISE COMPATIBILITY
CRITERIA FOR VARIED LAND USES.(U)
•AIRCRAFT NOISE

AN ANALYSIS OF AD- 620 347
LIABILITY IN AIRCRAFT TRESPASS AND
NUISANCE CASES SINCE 1958.(U)
•JET PLANE NOISE

ANALYSIS OF OPERATIONAL AD- 741 149
NOISE MEASUREMENTS IN TERMS OF
SELECTED HUMAN RESPONSE NOISE
EVALUATION MEASURES.(U)
•AIRCRAFT NOISE

ANALYSIS OF THE EFFECT AD-A017 082
OF CONCORDE AIRCRAFT NOISE ON
HISTORIC STRUCTURES.(U)
•AIRCRAFT NOISE

AUDITORY PROCESSING FOR AD- 717 394
SPEECH INTELLIGIBILITY
IMPROVEMENT.(U)
•SPEECH

AUTONOMIC RESPONSES TO AD- 737 926
AIRCRAFT NOISE IN DYSLEXIC
CHILDREN.(U)
•READING

B-58 FLIGHT LINE AND AD- 261 500
MAINTENANCE HANGAR NOISE SURVEY
(CARSWELL AFB, TEXAS)(U)
•AIRPLANE ENGINE NOISE

BASELINE NOISE AD- 731 467
MEASUREMENTS OF THE OH-58A
HELICOPTER.(U)
•NOISE

BIOACOUSTIC NOISE AD- 738 627
PROBLEMS DURING OPERATION OF C-7A
CARIBOU AIRCRAFT.(U)
•AIRCRAFT NOISE

BOEING AIRPLANE/NOISE AD-A013 768
PERFORMANCE COMPUTER PROGRAM.
PROGRAMMER'S MANUAL.(U)
•AIRCRAFT NOISE

BOEING AIRPLANE/NOISE AD-A012 386
PERFORMANCE COMPUTER PROGRAM.
USER'S MANUAL.(U)
•AIRCRAFT NOISE

BROADBAND AND DISCRETE AD-A006 779
FREQUENCY RADIATION FROM SUBSONIC
ROTORS.(U)
•AIRCRAFT NOISE

BYPASS TURBOJET ENGINE AD-A003 086
NOISE CHARACTERISTICS ON THE TEST
STAND.(U)
•TURBOJET ENGINES

CATEGORY SCALING AD- 658 755
JUDGMENT TESTS ON MOTOR VEHICLE AND
AIRCRAFT NOISE.(U)
•NOISE

COCKPIT NOISE EXPOSURES AD- 705 964
ASSOCIATED WITH THE OPERATION OF
FIXED-AND ROTARY-WING AIRCRAFT.(U)
•AIRCRAFT NOISE

COCKPIT NOISE AD- 688 111
INTENSITY: ELEVEN TWIN-ENGINE
LIGHT AIRCRAFT.(U)
•COCKPITS

COCKPIT NOISE AD- 686 673

INTENSITY: FIFTEEN SINGLE-ENGINE LIGHT AIRCRAFT.(U)
•COCKPITS

COCKPIT NOISE WITHIN TRAINER AIRCRAFT.(U) AD- 717 852
•AIRCRAFT NOISE

COMBUSTION GENERATED NOISE IN TURBOPROPULSION SYSTEMS.(U) AD- 768 615
•COMBUSTION

COMBUSTION GENERATED NOISE IN TURBOPROPULSION SYSTEMS.(U) AD- 785 485
•JET ENGINE NOISE

COMBUSTION NOISE INVESTIGATION.(U) AD-A038 154
•AIRCRAFT ENGINE NOISE

COMMERCIAL AIRCRAFT NOISE DEFINITION - L1011 TRISTAR. VOLUME I.(U) AD-A012 371
•COMMERCIAL AIRCRAFT

COMMERCIAL AIRCRAFT NOISE DEFINITION - L-1011 TRISTAR. VOLUME II-L-1011-1 DATA.(U) AD-A012 372
•COMMERCIAL AIRCRAFT

COMMERCIAL AIRCRAFT NOISE DEFINITION - L-1011 TRISTAR. VOLUME III - PROGRAM USER'S MANUAL.(U) AD-A012 373
•COMMERCIAL AIRCRAFT

COMMERCIAL AIRCRAFT NOISE DEFINITION - L-1011 TRISTAR. VOLUME IV-PROGRAM DESIGN SPECIFICATION.(U) AD-A012 374
•COMMERCIAL AIRCRAFT

COMMERCIAL AIRCRAFT NOISE DEFINITION - L-1011 TRISTAR. VOLUME V-COMPUTER PROGRAMMER'S MANUAL.(U) AD-A012 375
•COMMERCIAL AIRCRAFT

COMMUNITY NOISE AD-A017 741
EXPOSURE RESULTING FROM AIRCRAFT OPERATIONS: ACQUISITION AND ANALYSIS OF AIRCRAFT NOISE AND PERFORMANCE DATA.(U)
•AIRCRAFT NOISE

COMMUNITY NOISE AD-A022 911
EXPOSURE RESULTING FROM AIRCRAFT OPERATIONS. APPENDIX: NOISEMAP PROGRAM OPERATOR'S MANUAL.(U)
•AIRCRAFT NOISE

COMMUNITY NOISE AD-A004 818
EXPOSURE RESULTING FROM AIRCRAFT OPERATIONS: APPLICATION GUIDE FOR PREDICTIVE PROCEDURE.(U)
•AIRCRAFT NOISE

COMMUNITY NOISE AD-A004 821
EXPOSURE RESULTING FROM AIRCRAFT OPERATIONS: COMPUTER PROGRAM DESCRIPTION.(U)
•AIRCRAFT NOISE

COMMUNITY NOISE AD- 785 360
EXPOSURE RESULTING FROM AIRCRAFT OPERATIONS: COMPUTER PROGRAM OPERATOR'S MANUAL.(U)
•MILITARY FACILITIES

COMMUNITY NOISE SURVEY- OFFUTT AFB, NEBRASKA,(U) AD- 784 841
•AIR FORCE FACILITIES

COMMUNITY REACTIONS TO AIR FORCE NOISE. PART I. BASIC CONCEPTS AND PRELIMINARY METHODOLOGY(U) AD- 267 052
•JET ENGINE NOISE

COMMUNITY REACTIONS TO AIR FORCE NOISE. PART II. DATA ON COMMUNITY STUDIES AND THEIR INTERPRETATION(U) AD- 267 057
•JET ENGINE NOISE

COMPARISONS BETWEEN SUBJECTIVE RATINGS OF AIRCRAFT NOISE AND VARIOUS OBJECTIVE MEASURES.(U) AD- 673 682
•AIRCRAFT NOISE

COMPATIBLE LAND USE PLANNING ON AND AROUND AIRPORTS.(U) AD- 650 267
•AIRPORTS

A COMPREHENSIVE REVIEW OF HELICOPTER NOISE LITERATURE.(U) AD-A014 690
•HELICOPTERS

COMPUTER PROGRAMS FOR UNDERWATER SOUND FIELDS DUE TO AIRBORNE SOURCES.(U) AD- 891 216
•UNDERWATER SOUND

CONSTRAINED LAYER TREATMENTS FOR NOISE CONTROL IN A HELICOPTER.(U) AD- 783 234
•ACOUSTIC INSULATION

CONVENTIONAL AND HIGH FREQUENCY HEARING OF NAVAL AIRCREWMEN AS A FUNCTION OF NOISE EXPOSURE.(U) AD- 739 368
•HEARING

CORE ENGINE NOISE CONTROL PROGRAM. VOLUME I. IDENTIFICATION OF COMPONENT NOISE SOURCES.(U) AD-A013 128
•TURBOFAN ENGINES

CORE ENGINE NOISE CONTROL PROGRAM. VOLUME II. IDENTIFICATION OF NOISE GENERATION AND SUPPRESSION MECHANISMS.(U) AD-A013 129
•TURBOFAN ENGINES

CORE ENGINE NOISE CONTROL PROGRAM. VOLUME III. PREDICTION METHODS.(U) AD-A013 131
•TURBOFAN ENGINES

CORE ENGINE NOISE PROGRAM. VOLUME III. PREDICTION METHODS -- SUPPLEMENT I. - EXTENSION OF PREDICTION METHODS.(U) AD-A030 376
•TURBOFAN ENGINES

CORRELATION OF ACTUAL AND ANALYTICAL HELICOPTER AURAL DETECTION CRITERIA. VOLUME I.(U) AD-B002 067
•AIRCRAFT NOISE

DC-9 NOISE RETROFIT AD- 776 127
FEASIBILITY. VOLUME I. LOWER GOAL NOISE, PERFORMANCE AND COST EVALUATION.(U)
•AIRCRAFT NOISE

DC-9 NOISE RETROFIT AD- 777 895
FEASIBILITY. VOLUME II. UPPER GOAL NOISE, PERFORMANCE AND COST EVALUATION.(U)
•PASSENGER AIRCRAFT

DESCRIPTIONS OF FLYOVER AD- 657 633
NOISE SIGNALS PRODUCED BY VARIOUS JET TRANSPORT AIRCRAFT.(U)
•JET PLANE NOISE

DEVELOPING NOISE AD-A023 429
EXPOSURE CONTOURS FOR GENERAL AVIATION AIRPORTS.(U)
•NOISE POLLUTION

DEVELOPMENT OF A AD-A036 224
UNIFORM APPROACH TO CHARACTERIZE NOISE IMPACT ON PEOPLE.(U)
•NOISE POLLUTION

DISCUSSION OF THE AD- 638 491
UTILITY OF AVAILABLE TECHNIQUES FOR MEASURING AIRCRAFT NOISE AND PREDICTING COMMUNITY RESPONSE.(U)
•AIRCRAFT NOISE

EFFECTIVE SOURCE AD- 727 345
DISTRIBUTION IN A CHOKED SCREECH JET.(U)
•AIRFRAMES

EFFECT OF AVIATION AD- 730 065
NOISE ON SOME INDICES OF PROTEIN AND VITAMIN METABOLISM (VLIYANIE AVIATSIONNOGO SHUMA NA NEKOTORYE POKAZATELI BELKOVOGO I VITAMINNOGO OBMENA).(U)
•AIRPLANE NOISE

THE EFFECT OF NOISE AD- 766 498
EXPOSURE DURING PRIMARY FLIGHT TRAINING ON THE CONVENTIONAL AND HIGH FREQUENCY HEARING OF NAVAL AVIATION OFFICER CANDIDATES.(U)
•HEARING

EFFECT OF TEMPERATURE AD-A014 644
AND HUMIDITY ON AIRCRAFT NOISE PROPAGATION.(U)
•AIRCRAFT NOISE

THE EFFECTS OF DURATION AD- 646 025
AND BACKGROUND NOISE LEVEL ON PERCEIVED NOISEINESS.(U)
•AIRCRAFT NOISE

EFFECTS OF FINITE DUCT AD- 782 165
LENGTH AND BLADE CHORD ON NOISE GENERATION BY A ROTATING BLADE ROW.(U)
•TURBOFAN ENGINES

THE EFFECTS OF LOCAL AD- 754 270
METEOROLOGICAL FACTORS UPON AIRCRAFT NOISE MEASUREMENTS.(U)
•METEOROLOGICAL PHENOMENA

EFFECTS OF SST TAKEOFF AD- 722 366
PROCEDURES ON NOISE EXPOSURE, AND REVIEW OF EPNL VARIATIONS WITH DISTANCE.(U)
•JET PLANE NOISE

THE EFFECTS OF TEMPORAL AD- 712 734
AND SPECTRAL COMBINATIONS ON THE JUDGED NOISINESS OF AIRCRAFT SOUNDS.(U)
•AIRCRAFT NOISE

THE EFFECTS OF AD- 639 363
ULTRASONIC VIBRATIONS ON MAN.(U)
•ULTRASONIC RADIATION

ENGINEERING AND AD- 768 847
DEVELOPMENT PROGRAM PLAN - AIRCRAFT NOISE AND SONIC BOOM.(U)
•AIRCRAFT NOISE

ENVIRONMENTAL AD-A041 900
POLLUTION: NOISE POLLUTION - SONIC BOOM.(U)
•SONIC BOOM

EVALUATION OF AIRPORT AD- 263 053
NOISE AND COMMUNITY REACTION(U)
•AIRCRAFT NOISE

EVALUATION OF CANINE AD- 697 377
EAR DEFENDERS.(U)
•EAR PROTECTORS

EVALUATION OF HEARING AD- 747 129
LEVELS OF RESIDENTS LIVING NEAR A MAJOR AIRPORT.(U)
•AIRCRAFT NOISE

EVALUATION OF NOISE AD- 658 448
PROBLEMS ANTICIPATED WITH FUTURE VTOL AIRCRAFT.(U)
•VERTICAL TAKEOFF AIRCRAFT

AN EVALUATION OF AD- 619 409
PATIENTS SUSPECTED OF HAVING NOISE-INDUCED HEARING LOSS.(U)
•NOISE

AN EVALUATION OF AD- 770 244
PSYCHOACOUSTIC PROCEDURES FOR DETERMINING HUMAN NOISE: VOLUME II. DEMONSTRATED EXAMPLES.(U)
•PSYCHOACOUSTICS

AN EVALUATION OF AD- 770 185
PSYCHOACOUSTIC PROCEDURES FOR DETERMINING HUMAN RESPONSE TO AIRCRAFT NOISE. VOLUME I. SPECIFICATIONS FOR FOUR EXPERIMENTS.(U)
•AIRCRAFT NOISE

AN EXPERIMENT IN AURAL AD- 917 356
DETECTION OF HELICOPTERS.(U)
•HELICOPTERS

EXPERIMENTAL AD- 739 987
ATMOSPHERIC ABSORPTION COEFFICIENTS.(U)
•JET PLANE NOISE

AN EXPERIMENTAL AD- 638 356
COMPARISON OF 5 CONDITIONS FOR VOICE COMMUNICATION TRAINING.(U)
•SPEECH

EXPERIMENTAL EVALUATION AD-A024 403
OF NAS MIRAMAR HUSH HOUSE (PROJECT

P-114). VOLUME I.(U)
•AIRCRAFT NOISE

EXPERIMENTAL EVALUATION AD-A024 404
OF NAS MIRAMAR HUSH HOUSE (PROJECT P-114). VOLUME II.(U)
•AIRCRAFT NOISE

EXPERIMENTELLE AD- 689 086
UNTERSUCHUNGEN UEBER DIE STOERWIRKUNG VON FLUGZEUGLAERM (EXPERIMENTAL INVESTIGATIONS OF DISCOMFORT PRODUCED BY AIRPLANE NOISES).(U)
•AIRCRAFT NOISE

EXPLORATORY AD- 722 851
INVESTIGATION OF JET ENGINE SILENCING WITH PLUG NOZZLE CONFIGURATIONS.(U)
•PLUG NOZZLES

FAA INTEGRATED NOISE AD-A036 723
MODEL DATA BASE.(U)
•AIRCRAFT NOISE

FAA INTEGRATED NOISE AD-A035 062
MODEL USER'S GUIDE.(U)
•AIRCRAFT NOISE

FAA JT3D QUIET NACELLE AD-A083 037
RETROFIT FEASIBILITY PROGRAM. VOLUME II. ADDENDUM A. MODEL AND FULL SCALE PLUG NOZZLE TESTS.(U)
•JET ENGINE NOISE

FAA JT3D QUIET NACELLE AD-A012 969
RETROFIT FEASIBILITY PROGRAM. VOLUME II. UPPER GOAL GROUND TESTING.(U)
•JET TRANSPORT PLANES

FACTORS INFLUENCING THE AD- 617 765
NOISE EXPOSURE UNDER THE LANDING PATH FOR JET TRANSPORT AIRCRAFT.(U)
•JET TRANSPORT PLANES

FAN-COMPRESSOR NOISE: AD- 733 590
PREDICTION, RESEARCH, AND REDUCTION STUDIES.(U)
•COMPRESSOR NOISE

FAN/COMPRESSOR NOISE AD- 740 513
RESEARCH. VOLUME I. DETAILED DISCUSSION.(U)
•AXIAL FLOW COMPRESSORS

FAN/COMPRESSOR NOISE AD- 740 514
RESEARCH. VOLUME II. DETAILED DISCUSSION.(U)
•AXIAL FLOW COMPRESSORS

FAN/COMPRESSOR NOISE AD- 740 515
RESEARCH. VOLUME III. COMPILATION OF TEST DATA.(U)
•AXIAL FLOW COMPRESSORS

FAN/COMPRESSOR NOISE AD- 740 516
RESEARCH. VOLUME IV. COMPILATION OF TEST DATA.(U)
•AXIAL FLOW COMPRESSORS

FAR FIELD NOISE AD- 748 039
GENERATION BY COAXIAL FLOW JET EXHAUSTS. VOLUME II. COMPILATION OF TEST RESULTS.(U)
•EXHAUST GASES

FORCES ON A COANDA AD- 775 950
SURFACE.(U)
•COANDA EFFECT

FREQUENCY DEPENDENCE OF AD- 744 590
SOUND TRANSMITTED FROM AN AIRBORNE SOURCE INTO THE OCEAN.(U)
•AIRPLANE ENGINE NOISE

FREQUENCY SPECTRUM AND AD- 654 927
TIME DURATION DESCRIPTIONS OF AIRCRAFT FLYOVER NOISE SIGNALS.(U)
•JET PLANE NOISE

FURTHER SENSITIVITY AD-A041 781
STUDIES OF COMMUNITY-AIRCRAFT NOISE EXPOSURE (NOISEMAP) PREDICTION PROCEDURES.(U)
•AIRCRAFT NOISE

THE GENERATION AND AD- 787 192
RADIATION OF SUPERSONIC JET EXHAUST NOISE: A PROGRESS REPORT ON STUDIES OF JET NOISE GENERATION AND RADIATION, TURBULENCE STRUCTURE AND

EXP-THE

LASER VELOCIMETRY.(U)
•JET PLANE NOISE

THE GENERATION AND AD- 749 428
RADIATION OF SUPERSONIC JET NOISE. VOLUME I. SUMMARY OF SUPERSONIC JET NOISE STUDIES.(U)
•JET ENGINE NOISE

THE GENERATION AND AD-A032 478
RADIATION OF SUPERSONIC JET NOISE. VOLUME I. SUMMARY.(U)
•JET PLANE NOISE

THE GENERATION AND AD- 749 137
RADIATION OF SUPERSONIC JET NOISE. VOLUME II. FUTURE STUDIES FOR DEFINITION OF SUPERSONIC JET NOISE GENERATION AND REDUCTION MECHANISMS.(U)
•JET ENGINE NOISE

THE GENERATION AND AD-A032 881
RADIATION OF SUPERSONIC JET NOISE. VOLUME II. STUDIES OF JET NOISE, TURBULENCE STRUCTURE AND LASER VELOCIMETRY.(U)
•JET ENGINE NOISE

THE GENERATION AND AD- 749 138
RADIATION OF SUPERSONIC JET NOISE. VOLUME III. PROGRESS TOWARD A UNIFIED THEORY OF JET ENGINE NOISE.(U)
•JET ENGINE NOISE

THE GENERATION AND AD-A032 882
RADIATION OF SUPERSONIC JET NOISE. VOLUME III. TURBULENT MIXING NOISE DATA.(U)
•JET ENGINE NOISE

THE GENERATION AND AD-A032 883
RADIATION OF SUPERSONIC JET NOISE. VOLUME IV. SHOCK-ASSOCIATED NOISE DATA.(U)
•JET ENGINE NOISE

THE GENERATION AND AD- 749 139
RADIATION OF SUPERSONIC JET NOISE. VOLUME IV. THEORY OF TURBULENCE

GENERATED JET NOISE, NOISE RADIATION FROM UPSTREAM SOURCES, AND COMBUSTION NOISE.(U)
•JET ENGINE NOISE

THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME V. AN EXPERIMENTAL INVESTIGATION OF JET NOISE VARIATION WITH VELOCITY AND TEMPERATURE.(U) AD- 749 140
•JET ENGINE NOISE

THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME V - APPENDIX I. TURBULENCE MIXING REGION NOISE DATA.(U) AD- 749 141
•JET ENGINE NOISE

THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME V - APPENDIX II. SHOCK ASSOCIATED NOISE DATA.(U) AD- 749 142
•JET ENGINE NOISE

THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME VI. JET FLOW MEASUREMENT AND ANALYSIS WITH SPECIAL EMPHASIS ON REMOTE SENSING DEVICES. CROSSED BEAM SCHLIEREN, LASER DOPPLER VELOCIMETER, PULSED LASER INTERFEROMETER.(U) AD- 749 143
•JET ENGINE NOISE

GROWTH OF NOISINESS FOR TONES AND BANDS OF NOISE AT DIFFERENT FREQUENCIES.(U) AD- 663 904
•NOISE

GRUMMAN JET NOISE FACILITY.(U) AD- 759 862
•ACOUSTIC RANGES

GUIDELINES FOR ESTABLISHING INTERIOR NOISE LEVEL CRITERIA FOR AIR FORCE AIRCRAFT.(U) AD- 670 165
•AIRCRAFT CABINS

HELICOPTER NOISE CHARACTERISTICS FOR HELIPORT PLANNING.(U) AD- 617 764
•HELICOPTERS

HELICOPTER NOISE MEASUREMENTS DATA REPORT. VOLUME I. HELICOPTER MODELS: HUGHES 300-C. HUGHES 500-C, BELL 47-G, BELL 206L.(U) AD-A040 561
•AIRCRAFT NOISE

HELICOPTER NOISE MEASUREMENTS DATA REPORT. VOLUME II. HELICOPTER MODELS: BELL 212 (UH-1N); SIKORSKY S-61 (SH-3A), SIKORSKY S-64 'SKYCRANE' (CH-54B), BOEING VERTOL 'CHINOOK' (CH-47C).(U) AD-A040 562
•AIRCRAFT NOISE

HELICOPTER NOISE REDUCTION DESIGN TRADE-OFF STUDY.(U) AD-A038 192
•HELICOPTERS

HELICOPTER NOISE SYMPOSIUM, HELD AT DURHAM'S HOTEL AND MOTEL, DURHAM, NORTH CAROLINA, ON SEPTEMBER 28-30 1971.(U) AD- 748 876
•HELICOPTERS

HIGH VELOCITY JET NOISE SOURCE LOCATION AND REDUCTION. TASK 1. ACTIVATION OF FACILITIES AND VALIDATION OF SOURCE LOCATION TECHNIQUES.(U) AD-A041 848
•JET PLANE NOISE

HIGH VELOCITY JET NOISE SOURCE LOCATION AND REDUCTION. TASK 4. DEVELOPMENT/EVALUATION OF TECHNIQUES FOR 'INFLIGHT' INVESTIGATION.(U) AD-A041 849
•JET PLANE NOISE

IN-FLIGHT FAR-FIELD MEASUREMENT OF HELICOPTER IMPULSIVE NOISE.(U) AD-A025 979
•AIRCRAFT NOISE

INDICATORS OF THE EFFECT OF JET NOISE ON THE VALUE OF REAL ESTATE.(U) AD- 690 827
•JET PLANE NOISE

INVESTIGATION OF AIRCRAFT COMBUSTOR NOISE.(U) AD-A001 737
•AIRCRAFT ENGINE NOISE

INVESTIGATION OF FEASIBLE NOZZLE CONFIGURATIONS FOR NOISE REDUCTION IN TURBOFAN AND TURBOJET AIRCRAFT. VOLUME I. SUMMARY AND MULTINOZZLE CONFIGURATIONS.(U) AD-A024 958
•JET ENGINE NOISE

INVESTIGATION OF FEASIBLE NOZZLE CONFIGURATIONS FOR NOISE REDUCTION IN TURBOFAN AND TURBOJET AIRCRAFT. VOLUME II. SLOT NOZZLE CONFIGURATION.(U) AD-A024 959
•JET ENGINE NOISE

INVESTIGATION OF FEASIBLE NOZZLE CONFIGURATIONS FOR NOISE REDUCTION IN TURBOFAN AND TURBOJET AIRCRAFT. VOLUME III. SHROUDED SLOT NOZZLE CONFIGURATIONS.(U) AD-A041 782
•JET ENGINE NOISE

AN INVESTIGATION OF NOISE GENERATION ON A HOVERING ROTOR, PART II.(U) AD- 753 397
•HELICOPTER ROTORS

AN INVESTIGATION OF NOISE GENERATION ON A HOVERING ROTOR.(U) AD- 721 312
•HELICOPTER ROTORS

INVESTIGATION OF THE NOISE ASPECTS OF CARRIER DECK JET ENGINE OPERATION, AND EFFECTS OF NOISE SUPPRESSION ON AIRCRAFT MISSION PERFORMANCE. VOLUME I. EFFECTS OF NOISE FROM CARRIER DECK JET ENGINE OPERATION ON HEARING, SPEECH INTERFERENCE, AND SONIC FATIGUE. (U) AD- 432 086
•JET ENGINE NOISE

JET NOISE: A SURVEY AND A PREDICTION FOR SUBSONIC FLOWS.(U) AD-A013 794
•JET ENGINE NOISE

JET NOISE REDUCTION TECHNIQUE FOR MILITARY RECONNAISSANCE/SURVEILLANCE AIRCRAFT. PHASE I. BENCH/WIND TUNNEL TESTS.(U) AD- 774 748
•RECONNAISSANCE AIRCRAFT

LAND USE PLANNING RELATING TO AIRCRAFT NOISE, APPENDIX A.(U) AD- 617 954
•AIRCRAFT NOISE

LAND USE PLANNING RELATING TO AIRCRAFT NOISE.(U) AD- 615 015
•AIRPLANE ENGINE NOISE

LOW SPEED AERODYNAMICS FOR ULTRA-QUIET FLIGHT.(U) AD- 893 426
•AIRCRAFT NOISE

MEASUREMENT AND ANALYSIS OF BIOACOUSTIC ENVIRONMENTS ABOARD AC-119G AND AC-130A GUNSHIPS.(U) AD- 699 593
•TRANSPORT AIRCRAFT

MEASUREMENT AND ANALYSIS OF NOISE FROM FOUR AIRCRAFT DURING APPROACH AND DEPARTURE OPERATIONS (727, KC-135, 707-320B, AND DC-9).(U) AD- 740 563
•JET PLANE NOISE

MEASUREMENT AND ANALYSIS OF NOISE FROM FOUR AIRCRAFT IN LEVEL FLIGHT (727, KC-135, 707-320B AND DC-9).(U) AD- 739 870
•JET PLANE NOISE

MEASUREMENT AND ANALYSIS OF NOISE FROM SEVENTEEN AIRCRAFT IN LEVEL FLIGHT (MILITARY, BUSINESS JET, AND GENERAL AVIATION).(U) AD- 741 248
•AIRCRAFT NOISE

MINI RPV ENGINE NOISE REDUCTION.(U) AD-A027 638
•REMOTELY PILOTED VEHICLES

MODEL STUDY OF A PROPOSED ENGINEERING ACOUSTIC RESEARCH FACILITY (ETUDE SUR MODELE D'UN PROJET D'INSTALLATION DE RECHERCHES EN GENIE ACOUSTIQUE).(U) AD-A030 639
•ACOUSTICS

NEAR FIELD NOISE PREDICTION FOR A LINEAR ARRAY OF TURBOJET ENGINES.(U) AD-A001 329
•TURBOJET ENGINES

NEARFIELD INFRASONIC NOISE GENERATED BY THREE TURBOJET AIRCRAFT DURING GROUND RUNUP OPERATIONS.(U) AD- 623 086
•JET ENGINE NOISE

NEW ASPECTS OF SOUND GENERATION BY CIRCULAR JETS.(U) AD- 752 279
•JET ENGINE NOISE

A NEW CAPABILITY FOR PREDICTING HELICOPTER ROTOR NOISE IN HOVER AND IN FLIGHT.(U) AD-A025 982
•AIRCRAFT NOISE

NOISE AND AIR POLLUTION EMISSIONS FROM NOISE SUPPRESORS FOR ENGINE TEST STANDS AND AIRCRAFT POWER CHECK PADS.(U) AD- 757 862
•AIR POLLUTION

NOISE AND ITS EFFECT ON AIRCRAFT OPERATION.(U) AD- 427 666
•JET ENGINE NOISE

NOISE AND SPEECH LEVELS ASSOCIATED WITH THE F-111A PREP AREA, MCCLELLAN AFB.(U) AD- 744 828
•JET PLANE NOISE

NOISE ASSOCIATED WITH AIRBORNE OPERATION OF C-141A AIRCRAFT.(U) AD- 718 097
•JET PLANE NOISE

NOISE ASSOCIATED WITH OPERATION OF AIR FORCE OV-10A AIRCRAFT.(U) AD- 712 667
•AIRCRAFT NOISE

NOISE ASSOCIATED WITH OPERATION OF THE C-9A (AEROMEDICAL EVACUATION) AIRCRAFT.(U) AD- 715 222
•JET PLANE NOISE

NOISE ASSOCIATED WITH T-41A AND T-41C TRAINER AIRCRAFT.(U) AD- 731 128
•AIRPLANE NOISE

NOISE CERTIFICATION CONSIDERATIONS FOR HELICOPTERS BASED ON LABORATORY INVESTIGATIONS.(U) AD-A032 028
•NOISE POLLUTION

NOISE CERTIFICATION CRITERIA AND IMPLEMENTATION CONSIDERATIONS FOR V/STOL AIRCRAFT. VOLUME I.(U) AD-A018 036
•COMMERCIAL AIRCRAFT

NOISE CONTOURS FOR SHORT AND MEDIUM RANGE TRANSPORT AIRCRAFT AND BUSINESS AIRCRAFT.(U) AD- 617 763
•TRANSPORT AIRCRAFT

NOISE ENCOUNTERED IN ROTARY-WING AIRCRAFT.(U) AD- 702 422
•HELICOPTERS

NOISE ENVIRONMENTS OF CONTROL TOWERS.(U) AD- 752 535
•AIRPORT CONTROL TOWERS

NOISE ENVIRONMENTS WITHIN MULTIPLACE FIXED-WING AIRCRAFT.(U) AD- 708 430
•HEARING

NOISE ENVIRONS AND HELMET PERFORMANCE FOR THE P-1127 V/STOL AIRCRAFT.(U) AD- 686 736
•AIRCRAFT NOISE

NOISE EXPOSURE FORECAST CONTOUR INTERPRETATIONS OF AIRCRAFT AD- 695 507

NOISE TRADEOFF STUDIES.(U)
AIRPORTS

NOISE EXPOSURE FORECAST AD- 712 646
CONTOURS FOR 1967, 1970 AND 1975 OPERATIONS AT SELECTED AIRPORTS.(U)
AIRCRAFT NOISE

NOISE EXPOSURE FORECAST AD- 710 525
CONTOURS FOR AIRCRAFT NOISE TRADEOFF STUDIES AT THREE MAJOR AIRPORTS.(U)
•JET PLANE NOISE

NOISE EXPOSURE FORECAST AD- 722 365
CONTOURS FOR EXPECTED 1985 AND 1990 OPERATIONS AT SEVEN U. S. AIRPORTS.(U)
•JET PLANE NOISE

NOISE EXPOSURE AD- 711 131
FORECASTS: EVOLUTION, EVALUATION, EXTENSIONS, AND LAND USE INTERPRETATIONS.(U)
•AIRCRAFT NOISE

NOISE EXPOSURE AD- 660 703
FORECASTS FOR J. F. KENNEDY INTERNATIONAL AIRPORT.(U)
•AIRCRAFT NOISE

NOISE EXPOSURE AD- 660 702
FORECASTS FOR LOS ANGELES INTERNATIONAL AIRPORT.(U)
•AIRCRAFT NOISE

NOISE EXPOSURE AD- 660 704
FORECASTS FOR O'HARE INTERNATIONAL AIRPORT.(U)
•AIRCRAFT NOISE

NOISE FROM AIRCRAFT AD- 740 393
OPERATIONS AT MIRAMAR NAVAL AIR STATION, CALIFORNIA AND LAND USE INTERPRETATIONS.(U)
•JET PLANE NOISE

NOISE FROM AIRCRAFT AD- 278 625
OPERATIONS(U)
•AIRPLANE ENGINE NOISE

NOISE FROM AIRCRAFT AD- 75[illegible] 111
OPERATIONS, U. S. NAVAL AIR STATION, LEMOORE, CALIFORNIA.(U)
•NAVAL AIR STATIONS

NOISE GENERATED BY AD- 702 101
SECONDARY AND AUXILIARY AIRCRAFT SYSTEMS.(U)
•AIRCRAFT NOISE

NOISE GENERATION BY AD- 767 336
CYLINDRICAL SPOILERS IMMERSED IN AN AIR DUCT.(U)
•SPOILERS

NOISE LEVELS ON AD- 729 067
AIRCRAFT-CARRIER FLIGHT DECKS, AND THEIR EFFECTS.(U)
•JET PLANE NOISE

NOISE MEASUREMENTS AD- 740 642
DURING APPROACH OPERATIONS ON RUNWAY 21R AT DETROIT METROPOLITAN AIRPORT.(U)
•AIRPORTS

NOISE PRIMER FOR THE AD- 721 010
SUPERSONIC TRANSPORT.(U)
•JET PLANE NOISE

NOISE PROBLEMS AD- 421 567
ASSOCIATED WITH THE OPERATION OF US ARMY AIRCRAFT.(U)
•AIRCRAFT NOISE

NOISE SURVEY, F-105 AD- 753 113
OVERFLIGHTS, WICHITA MOUNTAINS WILDLIFE REFUGE AND VICINITY, FORT SILL, OKLAHOMA.(U)
•JET PLANE NOISE

NOISE SURVEY FOR AD-A010 037
ADDITION OF T-37 AIRCRAFT AT MATHER AFB, CALIFORNIA.(U)
•JET TRAINING PLANES

NOISE SURVEY HU-1A AD- 267 575
HELICOPTER WITH MODIFIED EXHAUST SYSTEM(U)
•ACOUSTICS

NOISE WITHIN THE F-4E AD- 731 092
DURING GROUND AND AIRBORNE OPERATIONS.(U)
•JET PLANE NOISE

NOISINESS JUDGMENTS OF AD- 648 503
HELICOPTER FLYOVERS.(U)
•AIRCRAFT NOISE

THE NOISINESS OF AD- 708 816
DIFFUSE SOUND FIELDS AT HIGH INTENSITIES.(U)
•PSYCHOPHYSICS

NONLINEAR PROPAGATION AD-A029 575
DISTORTION OF JET NOISE.(U)
•JET ENGINE NOISE

ON THE TRANSMISSION OF AD- 738 511
SOUND WAVES THROUGH A BLADE ROW.(U)
•SOUND TRANSMISSION

AN OPERATIONAL AD- 729 586
EVALUATION OF THE TWO-SEGMENT APPROACH FOR NOISE ABATEMENT.(U)
•INSTRUMENT LANDINGS

P-3C AMBIENT AIRCRAFT AD- 888 802
NOISE.(U)
•AIRCRAFT NOISE

PHYSICAL ANALYSIS OF AD-A039 715
THE IMPULSIVE ASPECTS OF HELICOPTER NOISE.(U)
•HELICOPTERS

PREDICTING AURAL AD- 902 828
DETECTABILITY OF AIRCRAFT IN NOISE BACKGROUNDS.(U)
•AIRCRAFT NOISE

PREDICTION METHODS FOR AD- 900 905
NEAR FIELD NOISE ENVIRONMENTS OF VTOL AIRCRAFT.(U)
•VERTICAL TAKEOFF AIRCRAFT

PRESENTATIONS AT AD- 619 282
NATIONAL AIRCRAFT NOISE SYMPOSIUM, SPONSORED BY THE FEDERAL AVIATION AGENCY AT THE INTERNATIONAL HOTEL, JOHN F. KENNEDY INTERNATIONAL

AIRPORT, JAMAICA, NEW YORK, JUNE 9, 1965.(U)
•AIRCRAFT NOISE

PROCEDURES FOR DEVELOPING NOISE EXPOSURE FORECAST AREAS FOR AIRCRAFT FLIGHT OPERATIONS.(U) AD- 660 706
•AIRPORTS

A PROGRESS REPORT ON THE NAVAL AVIATORS' SPEECH DISCRIMINATION TEST.(U) AD- 716 766
•PILOTS

THE RELATIONS OF HEARING LOSS TO NOISE EXPOSURE.(U) AD- 696 775
•NOISE

THE RELATIONSHIP OF THE NAVAL AVIATOR'S SPEECH DISCRIMINATION TEST TO THE PURE TONE AUDIOGRAM.(U) AD- 671 188
•AVIATION PERSONNEL

RESEARCH ON NOISE GENERATED BY DUCTED AIR-FUEL COMBUSTION SYSTEMS.(U) AD- 754 094
•JET ENGINE NOISE

RESEARCH ON NOISE GENERATED BY DUCTED AIR-FUEL COMBUSTION SYSTEMS.(U) AD- 767 337
•JET ENGINE NOISE

RESEARCH ON NOISE GENERATED BY DUCTED AIR-FUEL COMBUSTION SYSTEMS.(U) AD- 785 028
•GAS TURBINES

RESEARCH ON NOISE GENERATED BY DUCTED AIR-FUEL COMBUSTION SYSTEMS.(U) AD-A015 688
•GAS TURBINES

RESEARCH ON NOISE GENERATED BY DUCTED AIR-FUEL COMBUSTION SYSTEMS.(U) AD-A039 957
•JET ENGINE NOISE

RESEARCH STUDY OF COST EFFECTIVENESS OF AUXILIARY LAUNCH SYSTEMS APPLICABLE TO COMMERCIAL TRANSPORTS FOR PURPOSES OF NOISE ABATEMENT.(U) AD- 732 264
•COMMERCIAL PLANES

RESULTS OF NOISE SURVEYS OF SEVENTEEN GENERAL AVIATION TYPE AIRCRAFT.(U) AD- 759 818
•AIRCRAFT NOISE

REVIEW OF STUDIES INVESTIGATING HUMAN RESPONSE TO COMMERCIAL AIRCRAFT NOISE.(U) AD-A022 356
•STRESS(PHYSIOLOGY)

THE ROAR, THE WHINE, THE BOOM AND THE LAW: SOME LEGAL CONCERNS ABOUT THE SST,(U) AD- 698 398
•LAW

SENSITIVITY STUDIES OF COMMUNITY-AIRCRAFT NOISE EXPOSURE (NOISEMAP) PREDICTION PROCEDURE,(U) AD-A026 535
•AIRCRAFT NOISE

A SIMPLE MODEL OF SHOCK CELL NOISE GENERATION AND ITS REDUCTION.(U) AD- 754 943
•SOUND PITCH

SIX INDICES FOR PREDICTING SPEECH INTERFERENCE WITHIN AIRCRAFT.(U) AD- 718 098
•SPEECH

SOME FACTORS INFLUENCING HUMAN RESPONSE TO AIRCRAFT NOISE: MASKING OF SPEECH AND VARIABILITY OF SUBJECTIVE JUDGMENTS.(U) AD- 617 935
•AIRCRAFT NOISE

SOME PROJECTED EFFECTS OF JET NOISE ON RESIDENTIAL PROPERTY NEAR LOS ANGELES INTERNATIONAL AIRPORT BY 1970.(U) AD- 688 478
•JET PLANE NOISE

SONAR DETECTION OF SUBMARINES BY HELICOPTER.(U) AD- 711 910
•AIRPLANE ENGINE NOISE

SPEECH INTELLIGIBILITY TESTING WITH THE MODIFIED RHYME TEST IN AVIATION TYPE NOISE.(U) AD- 765 470
•SPEECH RECOGNITION

THE SPEECH INTERFERENCE EFFECTS OF AIRCRAFT NOISE.(U) AD- 660 712
•AIRCRAFT NOISE

STANDARDIZATION OF AVIATION NOISE STRESS.(U) AD- 691 053
•JET ENGINE NOISE

STATE-OF-THE-ART REVIEW OF TURBINE ENGINE INLET NOISE.(U) AD- 753 000
•JET ENGINE NOISE

STATUS OF PURE-TONE AUDIOMETRY IN USAF HEARING PROGRAMS.(U) AD- 717 846
•AIR FORCE PERSONNEL

STOL NOISE PREDICTION AND ATTENUATION MODELS IN SUPPORT OF REGULATORY EFFORT.(U) AD- 777 569
•COMMERCIAL PLANES

STOL TRANSPORT PARAMETERS (MILITARY AND COMMERCIAL) WITH SPECIAL EMPHASIS ON NOISE.(U) AD- 729 184
•SHORT TAKE-OFF PLANES

A STUDY--INSULATING HOUSES FROM AIRCRAFT NOISE.(U) AD- 666 376
•URBAN AREAS

STUDY OF NOISE IN AIR ROUTE TRAFFIC CONTROL CENTER, FLIGHT SERVICE STATION, AIR TRAFFIC CONTROL TOWER AND REMOTE FACILITIES.(U) AD- 743 095
•TERMINAL FLIGHT FACILITIES

A STUDY OF THE CHARACTERISTICS OF MODERN ENGINE NOISE AND THE RESPONSE CHARACTERISTICS OF STRUCTURES(U) AD- 272 210
•ARMY

STUDY OF THE EFFECT OF DEPARTURE PROCEDURES ON THE NOISE PRODUCED BY JET TRANSPORT AIRCRAFT.(U) AD- 617 76
*JET TRANSPORT PLANES

SUBJECTIVE EVALUATION OF GENERAL AVIATION AIRCRAFT NOISE.(U) AD- 673 987
*AIRCRAFT NOISE

A SUGGESTED ACTION PROGRAM FOR THE RELIEF OF AIRFIELD CONGESTION AT SELECTED AIRPORTS.(U) AD- 689 107
*AIRPORTS

SUPERSONIC JET EXHAUST NOISE INVESTIGATION.(U) AD- 786 467
*SUPERSONIC AIRCRAFT

SUPERSONIC JET EXHAUST NOISE INVESTIGATION. VOLUME I. SUMMARY REPORT.(U) AD-A038 682
*JET ENGINE NOISE

SUPERSONIC JET EXHAUST NOISE INVESTIGATION. VOLUME II. TECHNICAL REPORT.(U) AD-A038 613
*JET ENGINE NOISE

SUPERSONIC JET EXHAUST NOISE INVESTIGATION. VOLUME III. COMPUTER USER'S MANUAL FOR AERO-ACOUSTIC PREDICTIONS.(U) AD-A038 614
*JET ENGINE NOISE

SUPERSONIC JET EXHAUST NOISE.(U) AD- 747 774
*SUPERSONIC AIRCRAFT

SUPERSONIC JET NOISE INVESTIGATION USING JET FLUCTUATING PRESSURE PROBES.(U) AD- 762 296
*JET PLANE NOISE

SUPERSONIC TRANSPORT NOISE REDUCTION TECHNOLOGY SUMMARY. PHASE I. SUMMARY OF GE4/SST ACOUSTIC SUPPRESSION RESEARCH. VOLUME 1.(U) AD- 907 109
*JET ENGINE NOISE

SUPERSONIC TRANSPORT NOISE REDUCTION TECHNOLOGY SUMMARY. PHASE I. SUMMARY OF GE4/SST ACOUSTIC SUPPRESSION RESEARCH. VOLUME 2.(U) AD- 907 110
*JET ENGINE NOISE

SUPERSONIC TRANSPORT NOISE REDUCTION TECHNOLOGY SUMMARY. PHASE I.(U) AD- 907 108
*JET ENGINE NOISE

TECHNICAL BACKGROUND; INTERIM CRITERIA FOR PLANNING ROTARY-WING AIRCRAFT TRAFFIC PATTERNS, AND SITING NOISE-SENSITIVE LAND USES.(U) AD-A031 449
*ROTARY WING AIRCRAFT

TECHNICAL EVALUATION REPORT ON FLUID DYNAMICS PANEL SPECIALISTS MEETING ON NOISE MECHANISMS.(U) AD- 776 655
*AIRCRAFT NOISE

TECHNIQUE FOR DEVELOPING NOISE EXPOSURE FORECASTS.(U) AD- 660 705
*AIRCRAFT NOISE

A TECHNIQUE FOR MEASURING THE EXTERNAL NOISE OF A MOVING HELICOPTER.(U) AD- 773 687
*HELICOPTERS

TEST AND EVALUATION OF A QUIET HELICOPTER CONFIGURATION HH-43B.(U) AD- 901 273
*HELICOPTERS

TEST PLAN FOR AIRCRAFT RUNUP NOISE PENALTY EVALUATION.(U) AD-A026 209
*AIRCRAFT NOISE

USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 31. B-52H IN-FLIGHT CREW NOISE.(U) AD-A029 605
*NOISE POLLUTION

USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 32. KC-135A IN-FLIGHT CREW NOISE.(U) AD-A029 606
*NOISE POLLUTION

USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 33. C-131B IN-FLIGHT CREW NOISE.(U) AD-A029 607
*NOISE POLLUTION

USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 34. VC-118A IN-FLIGHT CREW/PASSENGER NOISE.(U) AD-A029 608
*NOISE POLLUTION

USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 35. T-39B IN-FLIGHT CREW/PASSENGER NOISE.(U) AD-A029 609
*NOISE POLLUTION

USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 37. F-4D IN-FLIGHT CREW NOISE.(U) AD-A029 610
*NOISE POLLUTION

USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK; VOLUME 42. EC-135H IN-FLIGHT CREW NOISE.(U) AD-A029 613
*NOISE POLLUTION

USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK; VOLUME 45. F-111E IN-FLIGHT CREW NOISE.(U) AD-A029 614
*NOISE POLLUTION

USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK; VOLUME 46. O-2A IN-FLIGHT CREW NOISE.(U) AD-A029 615
*NOISE POLLUTION

USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK; VOLUME 47. O-2B IN-FLIGHT CREW NOISE.(U) AD-A029 616
*NOISE POLLUTION

USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK; VOLUME 48. T-33A IN-FLIGHT CREW NOISE.(U) AD-A029 617
*NOISE POLLUTION

USAF BIOENVIRONMENTAL AD-A029 618

NOISE DATA HANDBOOK: VOLUME 49. T-34A IN-FLIGHT CREW NOISE.(U)
•NOISE POLLUTION

USAF BIOENVIRONMENTAL AD-A029 619
NOISE DATA HANDBOOK: VOLUME 50. HH-43B IN-FLIGHT CREW NOISE.(U)
•NOISE POLLUTION

USAF BIOENVIRONMENTAL AD-A029 620
NOISE DATA HANDBOOK: VOLUME 51. HH-53C IN-FLIGHT CREW NOISE.(U)
•NOISE POLLUTION

USAF BIOENVIRONMENTAL AD-A029 621
NOISE DATA HANDBOOK: VOLUME 52. A-1E IN-FLIGHT CREW NOISE.(U)
•NOISE POLLUTION

USAF BIOENVIRONMENTAL AD-A029 622
NOISE DATA HANDBOOK: VOLUME 53. AC-119G IN-FLIGHT CREW NOISE.(U)
•NOISE POLLUTION

USAF BIOENVIRONMENTAL AD-A029 623
NOISE DATA HANDBOOK: VOLUME 54. C-123K IN-FLIGHT CREW NOISE.(U)
•NOISE POLLUTION

USAF BIOENVIRONMENTAL AD-A029 624
NOISE DATA HANDBOOK: VOLUME 55. AC-130A IN-FLIGHT CREW NOISE.(U)
•NOISE POLLUTION

USAF BIOENVIRONMENTAL AD-A029 625
NOISE DATA HANDBOOK: VOLUME 56. HC-130N IN-FLIGHT CREW NOISE.(U)
•NOISE POLLUTION

USAF BIOENVIRONMENTAL AD-A029 626
NOISE DATA HANDBOOK: VOLUME 57. T-28D-5 IN-FLIGHT CREW NOISE.(U)
•NOISE POLLUTION

USAF BIOENVIRONMENTAL AD-A033 641
NOISE DATA HANDBOOK. VOLUME 58. U-10B IN-FLIGHT CREW NOISE,(U)
•SHORT TAKEOFF AIRCRAFT

USAF BIOENVIRONMENTAL AD-A029 627
NOISE DATA HANDBOOK: VOLUME 60. UH-1N IN-FLIGHT CREW NOISE.(U)
•NOISE POLLUTION

USAF BIOENVIRONMENTAL AD-A029 628
NOISE DATA HANDBOOK: VOLUME 61. HH-3E IN-FLIGHT CREW NOISE.(U)
•NOISE POLLUTION

USAF BIOENVIRONMENTAL AD-A029 629
NOISE DATA HANDBOOK: VOLUME 62. C-5A IN-FLIGHT CREW/PASSENGER NOISE.(U)
•NOISE POLLUTION

USAF BIOENVIRONMENTAL AD-A033 643
NOISE DATA HANDBOOK. VOLUME 64. B-52G AIRCRAFT, NEAR AND FAR-FIELD NOISE,(U)
•BOMBER AIRCRAFT

USAF BIOENVIRONMENTAL AD-A033 531
NOISE DATA HANDBOOK. VOLUME 65. T-37B AIRCRAFT, NEAR AND FAR-FIELD NOISE,(U)
•JET ENGINE NOISE

USAF BIOENVIRONMENTAL AD-A031 865
NOISE DATA HANDBOOK: VOLUME I. ORGANIZATION, CONTENT AND APPLICATION,(U)
•NOISE POLLUTION

USAF BIOENVIRONMENTAL AD-A033 642
NOISE DATA. VOLUME 59. QU-22B IN-FLIGHT CREW NOISE,(U)
•UTILITY AIRCRAFT

USER EVALUATIONS OF TWO AD-674 184
AIRCREW PROTECTIVE HELMETS,(U)
•FLIGHT CREWS

USER MANUAL: INTERIM AD-A031 460
PROCEDURE FOR PLANNING ROTARY-WING AIRCRAFT TRAFFIC PATTERNS AND SITING NOISE-SENSITIVE LAND USES.(U)
•ROTARY WING AIRCRAFT

V/STOL AIRCRAFT NOISE AD-A028 765
PREDICTION (JET PROPULSORS).(U)
•JET PLANE NOISE

USA-VAL

V/STOL ROTARY AD-A027 389
PROPULSION SYSTEMS NOISE PREDICTION AND REDUCTION. VOLUME I. IDENTIFICATION OF SOURCES, NOISE GENERATING MECHANISMS, NOISE REDUCTION MECHANISMS, AND PREDICTION METHODOLOGY.(U)
•VERTICAL TAKEOFF AIRCRAFT

V/STOL ROTARY AD-A027 390
PROPULSION SYSTEMS NOISE PREDICTION AND REDUCTION. VOLUME II. GRAPHICAL PREDICTION METHODS.(U)
•VERTICAL TAKEOFF AIRCRAFT

V/STOL ROTARY AD-A027 363
PROPULSION SYSTEMS - NOISE PREDICTION AND REDUCTION. VOLUME III. COMPUTER PROGRAM USER'S MANUAL.(U)
•VERTICAL TAKEOFF AIRCRAFT

VALIDATION OF AIRCRAFT AD-A041 674
NOISE EXPOSURE PREDICTION PROCEDURE.(U)
•AIRCRAFT NOISE

•ABRAHAMSON, A LOUIS
• • •
CORRELATION OF ACTUAL AND ANALYTICAL HELICOPTER AURAL DETECTION CRITERIA. VOLUME I.
AD-B002 067

•ANDERSON, J. R.
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727 NOISE RETROFIT FEASIBILITY. VOLUME II. UPPER GOAL DESIGN, FABRICATION, AND GROUND TESTING.
AD- 763 596

•BAILEY, C. D.
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ACOUSTIC EMISSION STRUCTURE-BORNE NOISE MEASUREMENTS ON AIRCRAFT DURING FLIGHT.
AD-A033 188

•BARSOTTELLI, M. V.
• • •
JET NOISE REDUCTION TECHNIQUE FOR MILITARY RECONNAISSANCE/SURVEILLANCE AIRCRAFT. PHASE I. BENCH/WIND TUNNEL TESTS.
AD- 774 748

•BATTEN, BOBBY G.
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STOL TRANSPORT PARAMETERS (MILITARY AND COMMERCIAL) WITH SPECIAL EMPHASIS ON NOISE.
AD- 729 184

•BAUSCH, W.
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A COMPREHENSIVE REVIEW OF HELICOPTER NOISE LITERATURE.
AD-A014 640

•BEISEL, GEORGE E.
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THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME VI. JET FLOW MEASUREMENT AND ANALYSIS WITH SPECIAL EMPHASIS ON REMOTE SENSING DEVICES. CROSSED BEAM SCHLIEREN, LASER DOPPLER VELOCIMETER, PULSED LASER INTERFEROMETER.
AD- 749 143

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• • •
STATE-OF-THE-ART REVIEW OF TURBINE ENGINE INLET NOISE.
AD- 753 000

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• • •
THE EFFECTS OF TEMPORAL AND SPECTRAL COMBINATIONS ON THE JUDGED NOISINESS OF AIRCRAFT SOUNDS.
AD- 712 734
• • •
PREDICTING AURAL DETECTABILITY OF AIRCRAFT IN NOISE BACKGROUNDS.
AD- 902 828

•BENZAKEIN, M. J.
• • •
FAN/COMPRESSOR NOISE RESEARCH. VOLUME I. DETAILED DISCUSSION.
AD- 740 513
• • •
FAN/COMPRESSOR NOISE RESEARCH. VOLUME II. DETAILED DISCUSSION.
AD- 740 514
• • •
FAN/COMPRESSOR NOISE RESEARCH. VOLUME III. COMPILATION OF TEST DATA.
AD- 740 515
• • •
FAN/COMPRESSOR NOISE RESEARCH. VOLUME IV. COMPILATION OF TEST DATA.
AD- 740 516

•BENZAKEIN, MEYER J.
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SUPERSONIC JET EXHAUST NOISE.
AD- 747 774

•BEULKE, DONALD L.
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EVALUATION OF CANINE EAR DEFENDERS.
AD- 697 377

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BOEING AIRPLANE/NOISE PERFORMANCE COMPUTER PROGRAM. USER'S MANUAL.
AD-A012 385
• • •
BOEING AIRPLANE/NOISE PERFORMANCE COMPUTER PROGRAM. PROGRAMMER'S MANUAL.
AD-A013 768

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CORE ENGINE NOISE CONTROL PROGRAM. VOLUME I. IDENTIFICATION OF COMPONENT NOISE SOURCES.
AD-A013 128
• • •
CORE ENGINE NOISE CONTROL PROGRAM. VOLUME II. IDENTIFICATION OF NOISE GENERATION AND SUPPRESSION MECHANISMS.
AD-A013 129
• • •
CORE ENGINE NOISE CONTROL PROGRAM. VOLUME III. PREDICTION METHODS.
AD-A013 131

•BISHOP, DWIGHT E.
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NOISE CONTOURS FOR SHORT AND MEDIUM RANGE TRANSPORT AIRCRAFT AND BUSINESS AIRCRAFT.
AD- 617 763
• • •
HELICOPTER NOISE CHARACTERISTICS FOR HELIPORT PLANNING.
AD- 617 764
• • •
ANALYSIS OF COMMUNITY AND AIRPORT RELATIONSHIPS NOISE ABATEMENT. VOLUME II. DEVELOPMENT OF AIRCRAFT NOISE COMPATIBILITY CRITERIA FOR VARIED LAND USES.
AD- 618 191
• • •
FREQUENCY SPECTRUM AND TIME DURATION DESCRIPTIONS OF AIRCRAFT FLYOVER NOISE SIGNALS.
AD- 654 927
• • •
DESCRIPTIONS OF FLYOVER NOISE

SIGNALS PRODUCED BY VARIOUS JET TRANSPORT AIRCRAFT.
AD- 657 633

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AD- 660 706

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1965, 1970 AND 1975 NOISE EXPOSURE FORECAST AREAS FOR CHICAGO O'HARE INTERNATIONAL AIRPORT.
AD- 660 708

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AD- 660 709

• • •

1965, 1970 AND 1975 NOISE EXPOSURE FORECAST AREAS FOR JOHN F. KENNEDY AIRPORT, NEW YORK.
AD- 660 710

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NOISE EXPOSURE FORECAST CONTOUR INTERPRETATIONS OF AIRCRAFT NOISE TRADEOFF STUDIES.
AD- 695 507

• • •

NOISE EXPOSURE FORECAST CONTOURS FOR AIRCRAFT NOISE TRADEOFF STUDIES AT THREE MAJOR AIRPORTS.
AD- 710 525

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AD- 711 131

• • •

NOISE EXPOSURE FORECAST CONTOURS FOR 1967, 1970 AND 1975 OPERATIONS AT SELECTED AIRPORTS.
AD- 712 646

• • •

NOISE MEASUREMENTS DURING APPRAOCH OPERATIONS ON RUNWAY 21R AT DETROIT METROPOLITAN AIRPORT.
AD- 740 642

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AD-A017 741

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AD-A023 429

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AD-A026 535

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VALIDATION OF AIRCRAFT NOISE EXPOSURE PREDICTION PROCEDURE.
AD-A041 674

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FURTHER SENSITIVITY STUDIES OF COMMUNITY-AIRCRAFT NOISE EXPOSURE (NOISEMAP) PREDICTION PROCEDURES.
AD-A041 781

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NONLINEAR PROPAGATION DISTORTION OF JET NOISE.
AD-A029 575

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AD-A028 765

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AN INVESTIGATION OF NOISE GENERATION ON A HOVERING ROTOR, PART II.
AD- 753 397

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INVESTIGATION OF FEASIBLE NOZZLE CONFIGURATIONS FOR NOISE REDUCTION IN TURBOFAN AND TURBOJET AIRCRAFT. VOLUME I. SUMMARY AND MULTINOZZLE CONFIGURATIONS.
AD-A024 958

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AD- 691 053

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AD- 267 052

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AD- 267 057

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P-3C AMBIENT AIRCRAFT NOISE.
AD- 888 802

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AD- 774 748

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TEST AND EVALUATION OF A QUIET HELICOPTER CONFIGURATION HH-43B.
AD- 901 273

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HELICOPTER NOISE REDUCTION DESIGN TRADE-OFF STUDY.
AD-A038 192

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AD-A025 979

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AD- 907 109

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SUPERSONIC TRANSPORT NOISE REDUCTION TECHNOLOGY SUMMARY. PHASE I. SUMMARY OF GE4/SST ACOUSTIC SUPPRESSION RESEARCH. VOLUME 2.
AD- 907 110

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AD- 900 405

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AD-A025 982

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AD-A014 642

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AD- 733 590

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AD- 757 862

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COMMUNITY NOISE SURVEY-OFFUTT AFB, NEBRASKA.
AD- 784 841

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NOISE SURVEY FOR ADDITION OF T-37 AIRCRAFT AT MATHER AFB, CALIFORNIA.
AD-A010 037

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AD-A017 082

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THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME II. FUTURE STUDIES FOR DEFINITION OF SUPERSONIC JET NOISE GENERATION AND REDUCTION MECHANISMS.
AD- 749 137

• • •

THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME V. AN EXPERIMENTAL INVESTIGATION OF JET NOISE VARIATION WITH VELOCITY AND TEMPERATURE.
AD- 749 140

• • •

THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME V - APPENDIX I. TURBULENCE MIXING REGION NOISE DATA.
AD- 749 141

• • •

THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME V - APPENDIX II. SHOCK ASSOCIATED NOISE DATA.
AD- 749 142

• • •

THE GENERATION AND RADIATION OF SUPERSONIC JET NOISE. VOLUME VI. JET FLOW MEASUREMENT AND ANALYSIS WITH SPECIAL EMPHASIS ON REMOTE SENSING DEVICES. CROSSED BEAM SCHLIEREN, LASER DOPPLER VELOCIMETER, PULSED LASER INTERFEROMETER.
AD- 749 143

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AD-A032 881

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AD-A032 882

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AD-A032 883

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AD-A030 655

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AD-A030 656

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USER EVALUATIONS OF TWO AIRCREW PROTECTIVE HELMETS.
AD- 674 184

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AD-A030 656

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NOISE ENVIRONMENTS OF CONTROL TOWERS.

AD- 752 535

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AN INVESTIGATION OF NOISE GENERATION ON A HOVERING ROTOR, PART II.
AD- 753 397

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AIR TRANSPORTATION IN THE 1970'S: PROBLEMS AND OPPORTUNITIES.
AD- 664 040

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AIRCRAFT CONFIGURATION NOISE REDUCTION. VOLUME II. COMPUTER PROGRAM USER'S GUIDE AND OTHER APPENDICES.
AD-A030 656
• • •
AIRCRAFT CONFIGURATION NOISE REDUCTION. VOLUME III. COMPUTER PROGRAM SOURCE LISTING.
AD-A030 657

•CHAN, Y. Y.
• • •
A SIMPLE MODEL OF SHOCK CELL NOISE GENERATION AND ITS REDUCTION.
AD- 754 943

•CHAPPELL, M. S.
• • •
MODEL STUDY OF A PROPOSED ENGINEERING ACOUSTIC RESEARCH FACILITY (ETUDE SUR MODELE D'UN PROJET D'INSTALLATION DE RECHERCHES EN GENIE ACOUSTIQUE).
AD-A030 639

•CHIU, H. H.
• • •
NOISE GENERATION BY CYLINDRICAL SPOILERS IMMERSED IN AN AIR DUCT.
AD- 767 336
• • •
RESEARCH ON NOISE GENERATED BY DUCTED AIR-FUEL COMBUSTION SYSTEMS.
AD- 767 337
• • •
RESEARCH ON NOISE GENERATED BY DUCTED AIR-FUEL COMBUSTION SYSTEMS.
AD- 785 028

•CHUBBOY, ROBERT A.
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AN OPERATIONAL EVALUATION OF THE TWO-SEGMENT APPROACH FOR NOISE ABATEMENT.
AD- 724 586

•CLAES, H. P.
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FAN/COMPRESSOR NOISE RESEARCH. VOLUME I. DETAILED DISCUSSION.
AD- 740 513
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FAN/COMPRESSOR NOISE RESEARCH. VOLUME II. DETAILED DISCUSSION.
AD- 740 514
• • •
FAN/COMPRESSOR NOISE RESEARCH. VOLUME III. COMPILATION OF TEST DATA.
AD- 740 515
• • •
FAN/COMPRESSOR NOISE RESEARCH. VOLUME IV. COMPILATION OF TEST DATA.
AD- 740 516

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• • •
CORE ENGINE NOISE CONTROL PROGRAM. VOLUME II. IDENTIFICATION OF NOISE GENERATION AND SUPPRESSION MECHANISMS.
AD-A013 129
• • •
HIGH VELOCITY JET NOISE SOURCE LOCATION AND REDUCTION. TASK 4. DEVELOPMENT/EVALUATION OF TECHNIQUES FOR 'INFLIGHT' INVESTIGATION.
AD-A041 849

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NOISE FROM AIRCRAFT OPERATIONS
AD- 278 625

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ANALYSIS OF COMMUNITY AND AIRPORT RELATIONSHIPS/NOISE ABATEMENT. VOLUME I. AN APPROACH TO ANALYSIS OF AIRCRAFT NOISE PROBLEMS USING COMPUTER-AIDED TECHNIQUES.
AD- 618 190

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STUDY OF NOISE IN AIR ROUTE TRAFFIC CONTROL CENTER, FLIGHT SERVICE STATION, AIR TRAFFIC CONTROL TOWER AND REMOTE FACILITIES.
AD- 743 095

•CLOUGH, J
• • •
A STUDY OF THE CHARACTERISTICS OF MODERN ENGINE NOISE AND THE RESPONSE CHARACTERISTICS OF STRUCTURES
AD- 272 210

•COHEN, A.
• • •
EVALUATION OF HEARING LEVELS OF RESIDENTS LIVING NEAR A MAJOR AIRPORT.
AD- 747 129

•COLE, JOHN N.
• • •
EVALUATION OF NOISE PROBLEMS ANTICIPATED WITH FUTURE VTOL AIRCRAFT.
AD- 658 448
• • •
ACOUSTIC ENVIRONMENTS OF THE F-111A AIRCRAFT DURING GROUND RUNUP.
AD- 673 346
• • •
ACOUSTIC ENVIRONMENTS PRODUCED BY THE C-5A AIRCRAFT DURING GROUND OPERATIONS.
AD- 716 814
• • •
USAF BIOENVIRONMENTAL NOISE DATA

HANDBOOK. VOLUME 31. B-52H IN-
FLIGHT CREW NOISE.
AD-A029 605

• • •

USAF BIOENVIRONMENTAL NOISE DATA
HANDBOOK. VOLUME 32. KC-135A IN-
FLIGHT CREW NOISE.
AD-A029 606

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USAF BIOENVIRONMENTAL NOISE DATA
HANDBOOK. VOLUME 33. C-131B IN-
FLIGHT CREW NOISE.
AD-A029 607

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USAF BIOENVIRONMENTAL NOISE DATA
HANDBOOK. VOLUME 34. VC-118A IN-
FLIGHT CREW/PASSENGER NOISE.
AD-A029 608

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USAF BIOENVIRONMENTAL NOISE DATA
HANDBOOK. VOLUME 35. T-39B IN-
FLIGHT CREW/PASSENGER NOISE.
AD-A029 609

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USAF BIOENVIRONMENTAL NOISE DATA
HANDBOOK. VOLUME 37. F-4D IN-
FLIGHT CREW NOISE.
AD-A029 610

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USAF BIOENVIRONMENTAL NOISE DATA
HANDBOOK: VOLUME 42. EC-135H IN-
FLIGHT CREW NOISE.
AD-A029 613

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USAF BIOENVIRONMENTAL NOISE DATA
HANDBOOK: VOLUME 45. F-111E IN-
FLIGHT CREW NOISE.
AD-A029 614

• • •

USAF BIOENVIRONMENTAL NOISE DATA
HANDBOOK: VOLUME 46. O-2A IN-
FLIGHT CREW NOISE.
AD-A029 615

• • •

USAF BIOENVIRONMENTAL NOISE DATA
HANDBOOK: VOLUME 47. O-2B IN-
FLIGHT CREW NOISE.
AD-A029 616

• • •

USAF BIOENVIRONMENTAL NOISE DATA
HANDBOOK: VOLUME 48. T-33A IN-
FLIGHT CREW NOISE.
AD-A029 617

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USAF BIOENVIRONMENTAL NOISE DATA
HANDBOOK: VOLUME 49. T-34A IN-
FLIGHT CREW NOISE.
AD-A029 618

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USAF BIOENVIRONMENTAL NOISE DATA
HANDBOOK: VOLUME 50. HH-43B IN-
FLIGHT CREW NOISE.
AD-A029 619

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USAF BIOENVIRONMENTAL NOISE DATA
HANDBOOK: VOLUME 51. HH-53C IN-
FLIGHT CREW NOISE.
AD-A029 620

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USAF BIOENVIRONMENTAL NOISE DATA
HANDBOOK: VOLUME 52. A-1E IN-
FLIGHT CREW NOISE.
AD-A029 621

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USAF BIOENVIRONMENTAL NOISE DATA
HANDBOOK: VOLUME 53. AC-119G IN-
FLIGHT CREW NOISE.
AD-A029 622

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USAF BIOENVIRONMENTAL NOISE DATA
HANDBOOK: VOLUME 54. C-123K IN-
FLIGHT CREW NOISE.
AD-A029 623

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USAF BIOENVIRONMENTAL NOISE DATA
HANDBOOK: VOLUME 55. AC-130A IN-
FLIGHT CREW NOISE.
AD-A029 624

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HANDBOOK: VOLUME 56. HC-130N IN-
FLIGHT CREW NOISE.
AD-A029 625

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HANDBOOK: VOLUME 57. T-28D-5 IN-
FLIGHT CREW NOISE.
AD-A029 626

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HANDBOOK: VOLUME 60. UH-1N IN-
FLIGHT CREW NOISE.
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HANDBOOK: VOLUME 61. HH-3E IN-
FLIGHT CREW NOISE.
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SELECTED AIRPORTS.
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AD- 740 513

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VOLUME II. DETAILED DISCUSSION.
AD- 740 514

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VOLUME III. COMPILATION OF TEST
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AD- 740 516

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AD- 749 143

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AD- 907 108

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AD- 753 113

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AD- 711 131

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AD-A017 741

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AD- 421 567

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AD- 702 101

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AD- 702 422

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AD- 705 964

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AD- 708 430

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AD- 711 359

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NOISE ASSOCIATED WITH OPERATION OF AIR FORCE OV-10A AIRCRAFT.
AD- 712 667

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NOISE ASSOCIATED WITH OPERATION OF THE C-9A (AEROMEDICAL EVACUATION) AIRCRAFT.
AD- 715 222

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STATUS OF PURE-TONE AUDIOMETRY IN USAF HEARING PROGRAMS.
AD- 717 846

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AD- 717 852

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AD- 731 092

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AD- 731 128

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AD- 663 904

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AD-A038 154

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AD- 673 987

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THE NOISINESS OF DIFFUSE SOUND FIELDS AT HIGH INTENSITIES.
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AD- 747 129

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AD- 698 503

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AD- 658 755

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AD- 712 734

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AD- 722 851

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AD-A028 765

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AD- 782 165

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AD-A038 154

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AD-A012 372

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AD- 741 149
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